Service
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# Service Manual

**Horizontal Frequency**
**30kHz –80kHz**

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFOMER FOR THIS UNIT WHEN SERVICING

# Revision List

| Revision | Date | Revision History | TPV Model |
|---|---|---|---|
| A00 | Dec-28-06 | Initial Release | T56CM5NJXXXWAJ |
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## Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all AOC Company Equipment. The service procedures recommended by AOC and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. AOC could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, AOC has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by AOC must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.
Hereafter throughout this manual, AOC Company will be referred to as AOC.

**WARNING**

Use of substitute replacement parts, which do not have the same, specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from AOC. AOC assumes no liability, express or implied, arising out of any unauthorized modification of design.
Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:
DANGER-Invisible laser radiation when open AVOID DIRECT EXPOSURE TO BEAM.
CAUTION-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION -The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit
-Must mount the module using mounting holes arranged in four corners.
-Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
-Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
-Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
-Make certain that treatment person’s body is grounded through wristband.
-Do not leave the module in high temperature and in areas of high humidity for a long time.
-Avoid contact with water as it may a short circuit within the module.
-If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

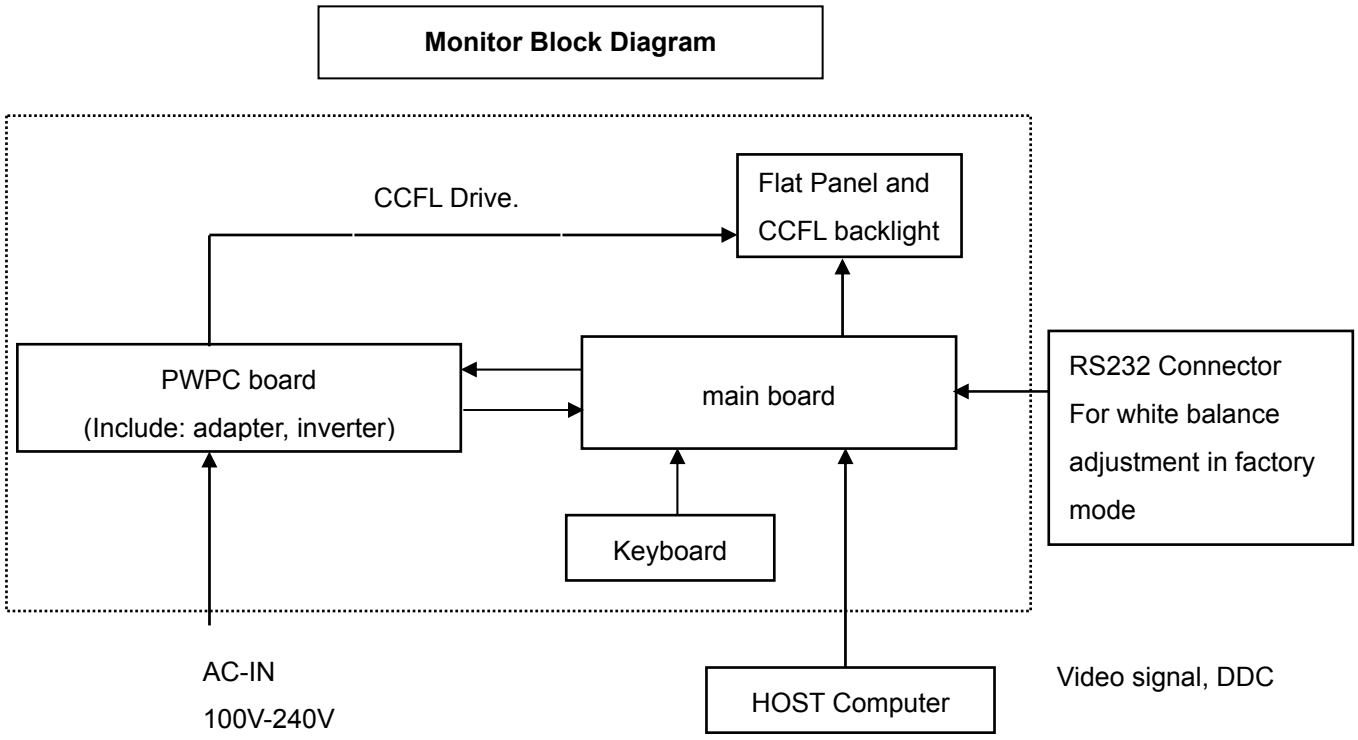
## 1. Monitor Specifications

| Items | Descriptions | |
|---|---|---|
| LCD Panel | Driving system | TFT Color LCD |
| | Type | CPT CLAA150XP01Q |
| | Size | 38cm(15.0") |
| | Pixel pitch | 0.297mm(H) x 0.297mm(V) |
| | Viewable angle | 140˚ (H) 125˚ (V) |
| | Response time (type) | 8 ms for CPT panel |
| Input | Video | R, G, B Analog input<br>Digital input |
| | Sync. Type | H/V TTL |
| | H-Frequency | 24.8kHz – 80kHz |
| | V-Frequency | 56-75Hz |
| Power Consumption | ON Mode | ≤27W |
| | OFF Mode | ≤1W |
| Contrast Ratio | 500:1 | |
| Dot Clock | 135MHz | |
| White Luminance | 250cd/$m^2$ | |
| Max. Resolution | 1024 × 768 @75Hz | |
| Power Consumption (Maximum) | 27 Watts | |
| Display Color | 16 M (6-bits+FRC) | |
| Plug & Play | VESA DDC2B™ | |
| Input Connector | 15-pin D-Sub | |
| Maximum Screen Size | Horizontal: 304.1mm;Vertical: 228.1mm | |
| Power Source | 100~240VAC,47~63Hz | |
| Environmental Considerations | Operating Temp: 5°C to 35°C<br>Storage Temp: -20°C to 60°C<br>Operating Humidity: 10% to 85% | |

## 2. LCD Monitor Description

The LCD MONITOR will contain a main board, a power board and a keypad board which house the flat panel control logic, brightness control logic and DDC.

The power board will provide AC to DC Inverter voltage to drive the backlight of panel and the main board chips each voltage.



## 3. Operating Instructions

### 3.1 General Instructions

Press the power button to turn the monitor on or off. The other control buttons are located at front panel of the monitor. By changing these settings, the picture can be adjusted to your personal preferences.

- The power cord should be connected.
- Connect the video cable from the monitor to the video card.
- Press the power button to turn on the monitor position. The power indicator will light up.

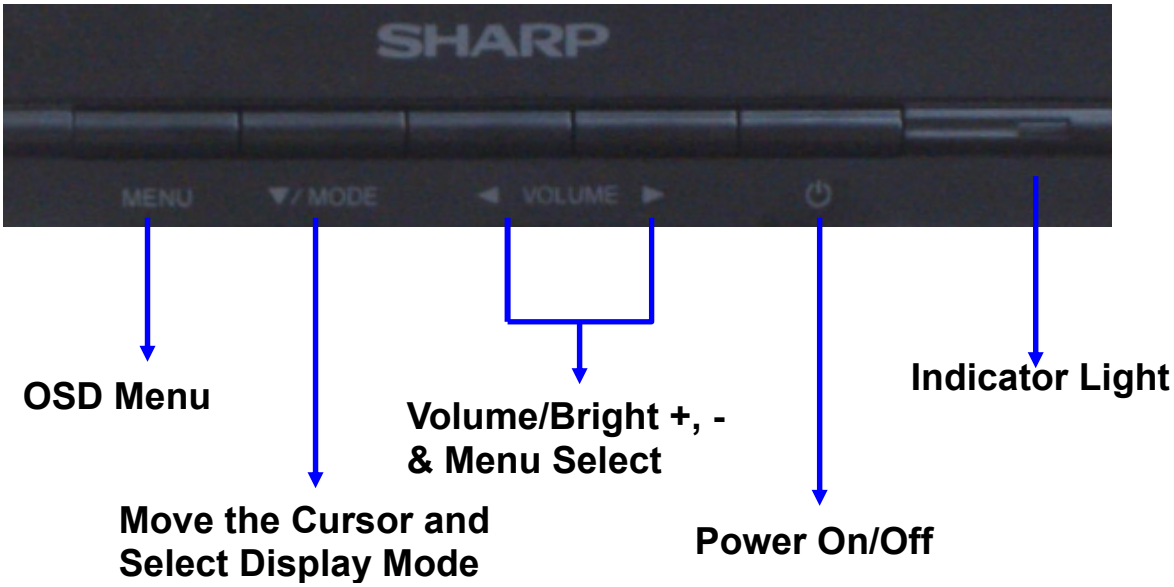
### 3.2 Control Buttons

- **Power Button:**
  When pressed, the monitor enters the off mode, and the LED turns blank. Press again to restore normal status.

- **Left / Right Button:**
  The Left/Right Button is used to control the monitor functions. Press to switch functions or adjust settings.

- **▼/MODE:**
  The **▼/MODE** Key is used to move the cursor and select display mode.

- **Power Indicator:**
  Green — Power On mode.
  Red — Power Saving mode.
  Blank —Power Off Mode.
  LED = GREEN, BLINKING (0.5s period) —Out of Range

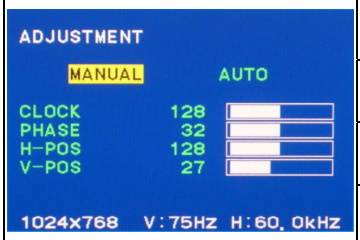
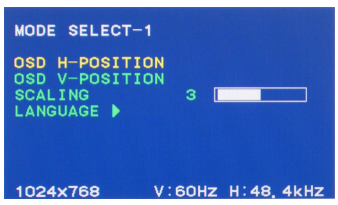
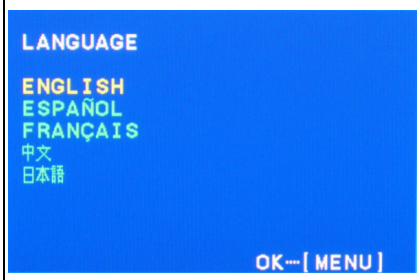


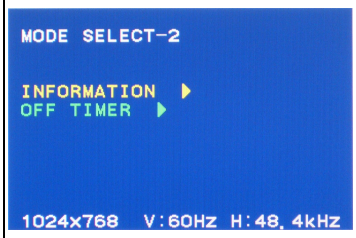
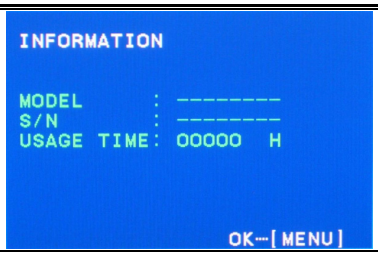

| NO. | Name | Within OSD | Without OSD |
|---|---|---|---|
| 1 | MENU | An adjustment menu display, a change, elimination | Activate OSD main menu |
| 2 | ▼/MODE | Move the cursor to down | Select display mode to STD or OFFICE or sRGB or VIVID. |
| 3 | < | 1.Move the cursor to left<br>2. Decrease the value of the selected item | Activate the volume and the bright menu |
| 4 | > | 1.Move the cursor to right<br>2.Increase the value of the selected item | Activate the volume and the brightness menu |
| 5 | POWER | Power On / Off | Power On / Off |
| 6 | Indicator Light | Green—On Red—Save | Green—On Red—Save |

### 3.3 Adjusting the Picture

1. Press the MENU-button to activate the OSD window.
2. Press < or > to select the desired function.
3. Press the ▼/ MODE -button to select the function that you want to adjust.
4. Press < or > to change the settings of the current function.
5. To exit and save, select the exit function, or leave the monitor alone for 10 seconds. If you want to adjust any other function, repeat steps 2-4.

**CONTROL FUNCTION**

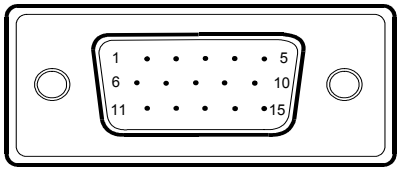
| Main Menu | Sub Main Menu | | Description |
|---|---|---|---|
|  | Clock | | Adjust picture Clock to reduce Vertical-Line noise. |
| | Phase | | Adjust Picture Phase to reduce Horizontal-Line noise. |
| | H. Position | | Adjust the horizontal position of the picture. |
| | V. Position | | Adjust the vertical position of the picture. |
| | Black Level | | Adjust the black level of the picture. |
| | Contrast | | Contrast from Digital-register. |
| | White Balance | Cool | Recall cool Color Temperature from EEPROM. |
| | | STD | Recall standard Color Temperature from EEPROM. |
| | | Warm | Recall warm Color Temperature from EEPROM. |
| | | User | Adjust the value of the Red/Green/Blue user color temperature. |
|  | OSD H-Position | | Adjust the horizontal position of the OSD. |
| | OSD V-Position | | Adjust the vertical position of the OSD. |
| | Scaling | | Adjust the sharpness of the pictures. |
|  | | English | Set OSD display language to English. |
| | | Español | Set OSD display language to Spaish. |
| | | Français | Set OSD display language to French. |
| | | 中文 | Set OSD display language to Chinese. |
| | | 日本语 | Set OSD display language to Japanese. |

<table>
<tr><td rowspan="3"> 
</td><td> 
</td><td>Information</td><td>Show the model, the S/N and the Usage time.</td></tr>
<tr><td rowspan="2">
</td><td>Off</td><td>The off timer is off</td></tr>
<tr><td>On</td><td>The off timer is on</td></tr>
</table>

## 4. Input/Output Specification

### 4.1 Input Signal Connector

**D-SUB connector**

| Pin No. | Description | Pin No. | Description |
|---|---|---|---|
| 1. | Red Video | 9. | +5V Supply |
| 2. | Green Video | 10. | GND |
| 3. | Blue Video | 11. | NC |
| 4. | NC | 12. | DDC-Serial Data |
| 5. | GND | 13. | H-Sync |
| 6. | Red Ground | 14. | V-Sync |
| 7. | Green Ground | 15. | DDC-Serial Clock |
| 8. | Blue ground | | |
| **Analog Connector** | | | |
|  | | | |

### 4.2 Factory Preset Display Modes

| Correspondence display mode | | Horizontal frequency | Vertical frequency | Dot frequency | Analog |
|---|---|---|---|---|---|
| VESA IBM AT Compatible machine PC-9800series | 640*480 | 31.5kHz | 60.0Hz | 25.175MHz | Yes |
| | | 37.9kHz | 72.0Hz | 31.5MHz | Yes |
| | | 37.5kHz | 75.0Hz | 31.5MHz | Yes |
| | 800*600 | 35.1kHz | 56.0Hz | 36.0MHz | Yes |
| | | 37.9kHz | 60.0Hz | 40.0MHz | Yes |
| | | 48.1kHz | 72.0Hz | 50.0MHz | Yes |
| | | 46.9kHz | 75.0Hz | 49.5MHz | Yes |
| | 1,024*768 | 48.4kHz | 60.0Hz | 65.0MHz | Yes |
| | | 56.5kHz | 70.0Hz | 75.0MHz | Yes |
| | | 60.0kHz | 75.0Hz | 78.75MHz | Yes |
| PC-9800series | 640*400 | 24.8kHz | 56.4Hz | 21.053MHz | Yes |
| | | 31.5kHz | 70.0Hz | 25.175MHz | Yes |
| US TEXT | 720*400 | 31.5kHz | 70.0Hz | 28.3MHz | Yes |
| Power Macintosh Series | 640*480 | 35.0kHz | 66.7Hz | 30.2MHz | Yes |
| | 832*624 | 49.7kHz | 74.6Hz | 57.3MHz | Yes |
| | 1,024*768 | 60.2kHz | 75.0Hz | 80.0MHz | Yes |

### 4.3 Power Supply

**The power supply should be integrated to the monitor housing.**

| | |
|---|---|
| A/C Line voltage range | : 100 V ~ 240 V |
| A/C Line frequency range | : 50 ± 3Hz, 60 ± 3Hz |
| Current | : 1.5A max at 100V; 0.8A max at 240 V |
| Peak surge current | : < 55A peak at 240 VAC and cold starting |
| Leakage current | : < 3.5mA |
| Power line surge | : No advance effects (no loss of information or defect)<br>With a maximum of 1 half-wave missing per second |
| DC output Voltage | : 5VDC ± 5%; 12VDC± 5% |
| Current | 1.5Amp (5V) ； 2 Amp (12V) |

## 4.4 Panel Specification

### 4.4.1 Display Characteristics

| ITEM | SPECIFICATION |
|---|---|
| Display Area (mm) | 304.1(H)x228.1(V) (15.0-inch diagonal) |
| Number of Pixels | 1024×3(H) ×768(V) |
| Pixel Pitch (mm) | 0.297(H) ×0.297(V) |
| Color Pixel Arrangement | RGB vertical stripe |
| Display Mode | Normally White, TN |
| Number of Colors | 16.2M (6bits+FRC) |
| Optimum Viewing Angle | 6 o’ clock |
| Brightness (cd/m$^2$) | 250cd/m$^2$ (Typ.)(center, 8.0mA) |
| Viewing Angle | 140/125 (Typ.) |
| Response time | 8ms |
| Surface Treatment, Haze | Anti-glare |
| Color Saturation | 65% |
| Module Size (mm) | 326.5(W) ×253.5(H) ×11.0(D) (Typ.) |
| Power consumption | 11.7 Watt (Typ) |
| Module Weight (g) | 1070 (Typ.) |
| Backlight Unit | CCFL, 2 tubes (top ×1/bottom ×1), Edge light |

### 4.4.2 Optical Characteristics

| ITEM | | SYMBOL | CONDITION | MIN. | TYP. | MAX. | UNIT | REMARK |
|---|---|---|---|---|---|---|---|---|
| Contrast (CEN) | | CR | θ= ψ =0° | 450 | 500 | -- | -- | *1) |
| Luminance (CEN) | | L | θ= ψ =0° | 200 | 250 | -- | cd/m$^2$ | *2) |
| 9P Luminance (AVG.) | | L | θ= ψ =0° | 180 | 225 | -- | cd/m$^2$ | *2) |
| 9P Uniformity (9P) | | ΔL | θ= ψ =0° | 75 | 80 | -- | % | *2) |
| Response Time | | Tr | θ= ψ =0° | -- | 2 | 4 | ms | *4) |
| | | Tf | θ= ψ =0° | -- | 6 | 10 | ms | |
| Image sticking | | Tis | 4 hours | -- | -- | 3 | s | *5) |
| Cross talk | | CMR | θ=? =0° | -- | -- | 1 | % | *6) |
| View angle | Horizontal | ψ | CR≧5 | 150 | 170 | -- | Deg. | |
| | Vertical | θ | | 150 | 170 | -- | Deg. | |
| | Horizontal | ψ | CR≧10 | 120 | 140 | -- | Deg. | |
| | Vertical | θ | | 105 | 125 | -- | Deg. | |
| Color Coordinates | White | X<br>Y | θ= ψ =0° | 0.283<br>0.299 | 0.313<br>0.329 | 0.343<br>0.359 | -- | |
| | Red | X<br>Y | | 0.613<br>0.305 | 0.643<br>0.335 | 0.673<br>0.365 | | |
| | Green | X<br>Y | | 0.270<br>0.555 | 0.300<br>0.585 | 0.330<br>0.615 | | |
| | Blue | X<br>Y | | 0.113<br>0.049 | 0.143<br>0.079 | 0.173<br>0.109 | | |
| Color Temperature | | K | -- | -- | 6500 | -- | K | -- |
| Gamma | | ? | VESA | 2.0 | 2.2 | 2.4 | -- | *7) |

### 4.4.3 Electrical Characteristics

**TFT LCD Module**

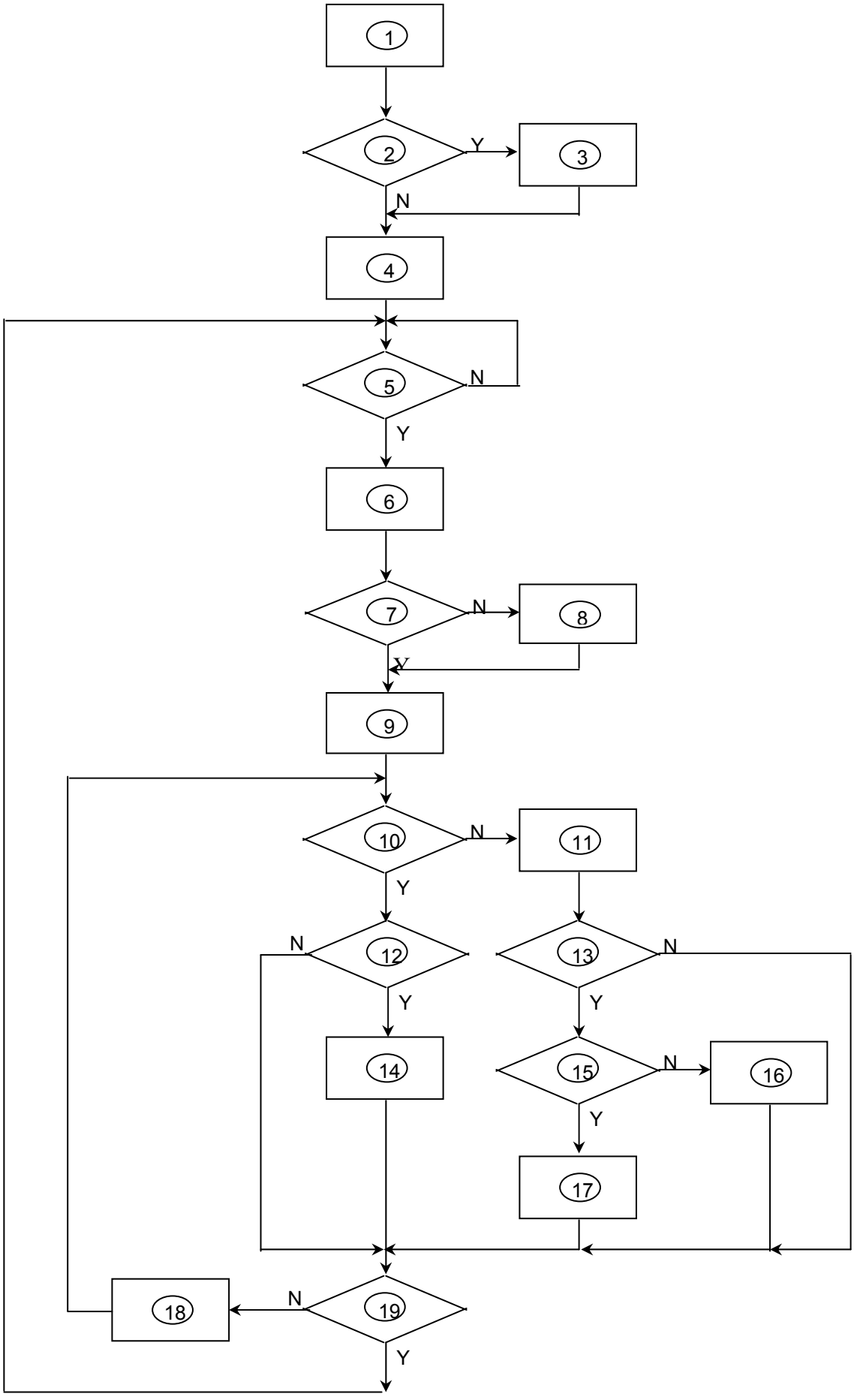
| ITEM | SYMBOL | MIN. | MAX. | UNIT | Remark |
|---|---|---|---|---|---|
| Power Supply Voltage For LCD | VCC | -- | 4.0 | V | -- |
| IDDD Rush Current | IRUSHd | -- | 4.0 | A | *1) |
| Lamp Voltage | VL | 530 | 785 | Vrms | *2) |
| Lamp Current | IL | 3 | 8.5 | mArms | *2) |
| Lamp Frequency | FL | 40 | 80 | kHz | *2) *3) |
| Operation Temperature (Surrounding) | Top | 0 | 50 | ℃ | *4). 5). 6). 7) 9) |
| Storage Temperature | Tstg | -20 | 60 | ℃ | *4). 5). 6) 9) |
| Delayed Discharge Time | TD | -- | 1 | sec | *8) |

**Back- Light Unit**

| ITEM | SYMBOL | MIN | TYP | MAX | UNIT | REMARK |
|---|---|---|---|---|---|---|
| Lamp Voltage | VL | 540 | 600 | 660 | Vrms | *2) ; IL=8.0mA |
| Lamp Operation range | IL | 3.0 | 8.0 | 8.5 | mArms | *1) |
| Lamp Standard Current | IL | 7.5 | 8.0 | 8.5 | mArms | *2) |
| Inverter Frequency | FI | 40 | — | 60 | kHz | *2) *4) *5) |
| Start up Lamp Voltage | VS | 1050 | — | — | Vrms | Ta=25℃ *2) *6) |
| | | 1350 | — | — | Vrms | Ta=0℃ *2) *6) |

**5. Block Diagram**

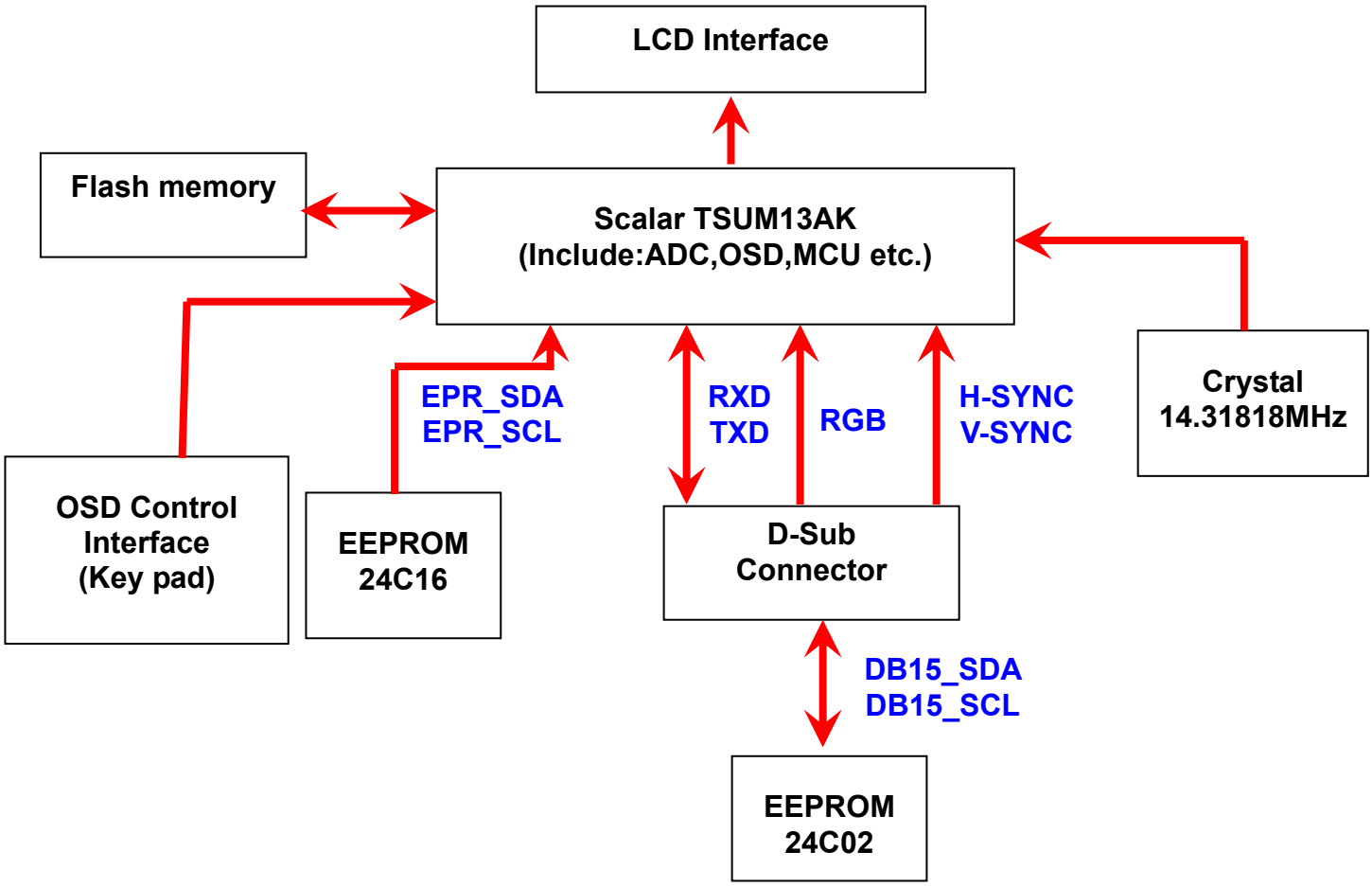
**5.1 Soft Flow Chart**



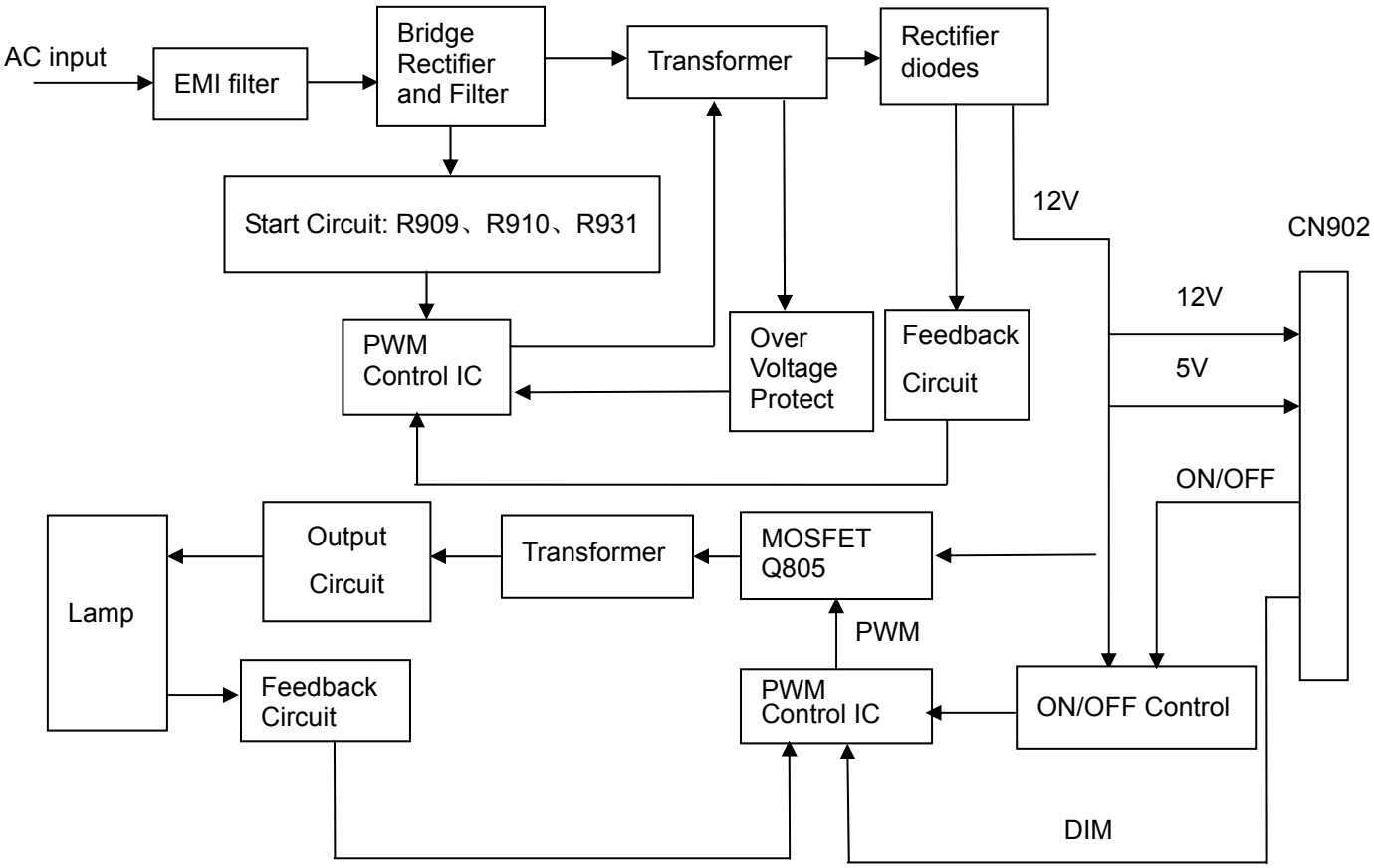
1) MCU initializes.
2) Is the EPROM blank?
3) Program the EPROM by default values.
4) Get the PWM value of brightness from EPROM.
5) Is the power key pressed?
6) Clear all global flags.
7) Are the AUTO and SELECT keys pressed?
8) Enter factory mode.
9) Save the power key status into EPROM.
   Turn on the LED and set it to green color.
   Scalar initializes.
10) In standby mode?
11) Update the lifetime of back light.
12) Check the analog port, are there any signals coming?
13) Does the scalar send out an interrupt request?
14) Wake up the scalar.
15) Are there any signals coming from analog port?
16) Display "No connection Check Signal Cable" message. And go into standby mode after the message disappears.
17) Program the scalar to be able to show the coming mode.
18) Process the OSD display.
19) Read the keyboard. Is the power key pressed?

## 5.2 Electrical Block Diagram

### 5.2.1 Main Board

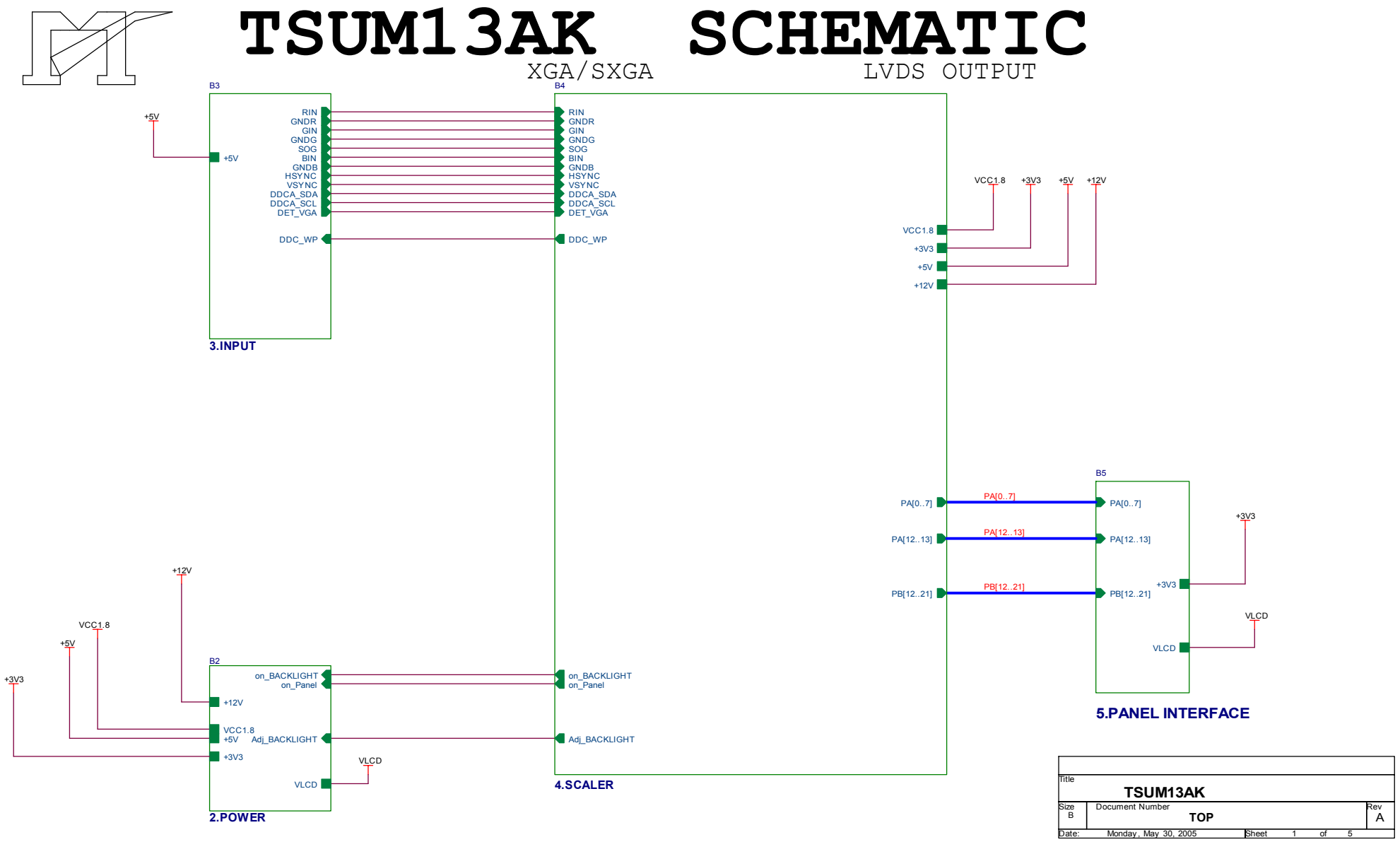


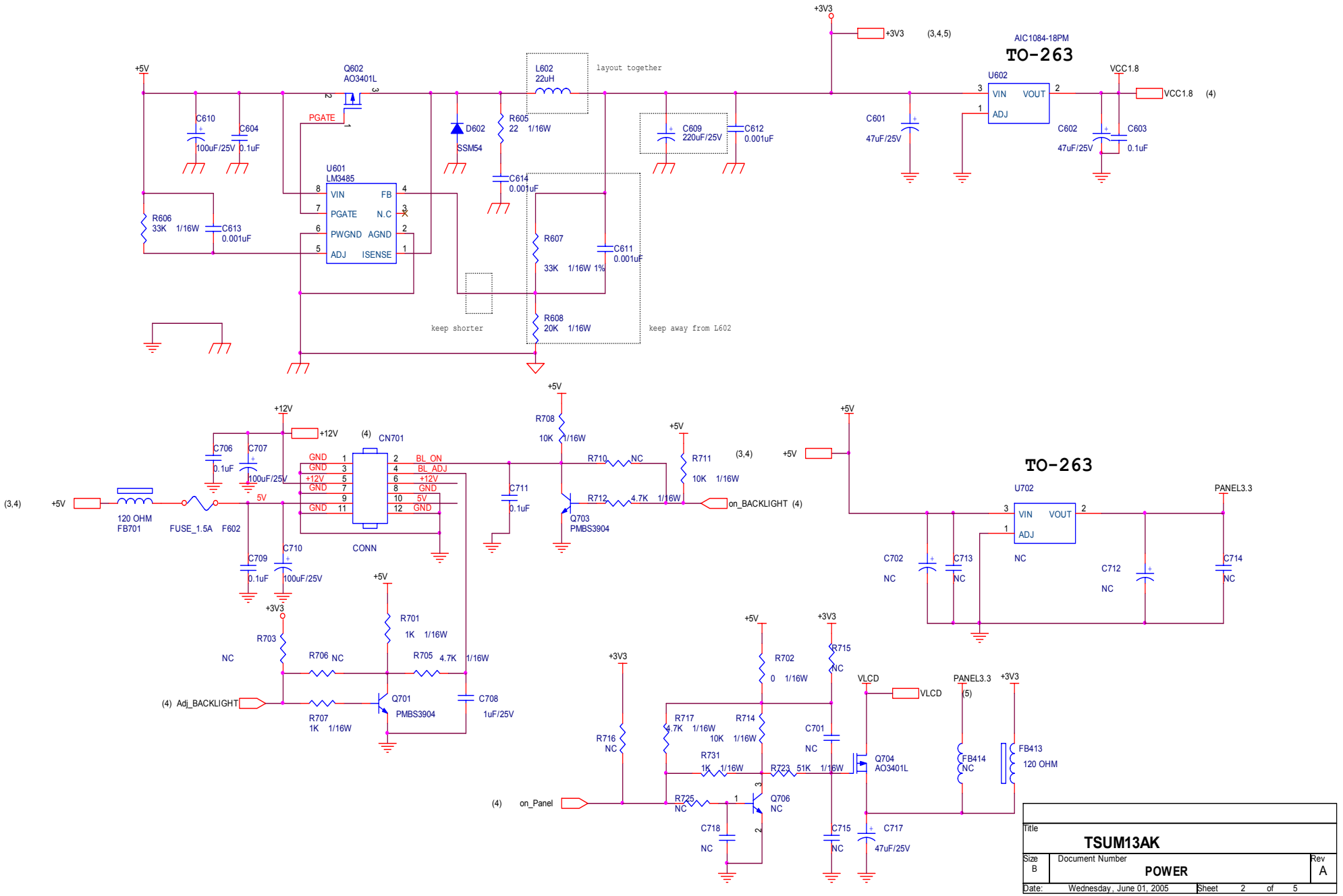
**5.2.2 Inverter/Power Board**

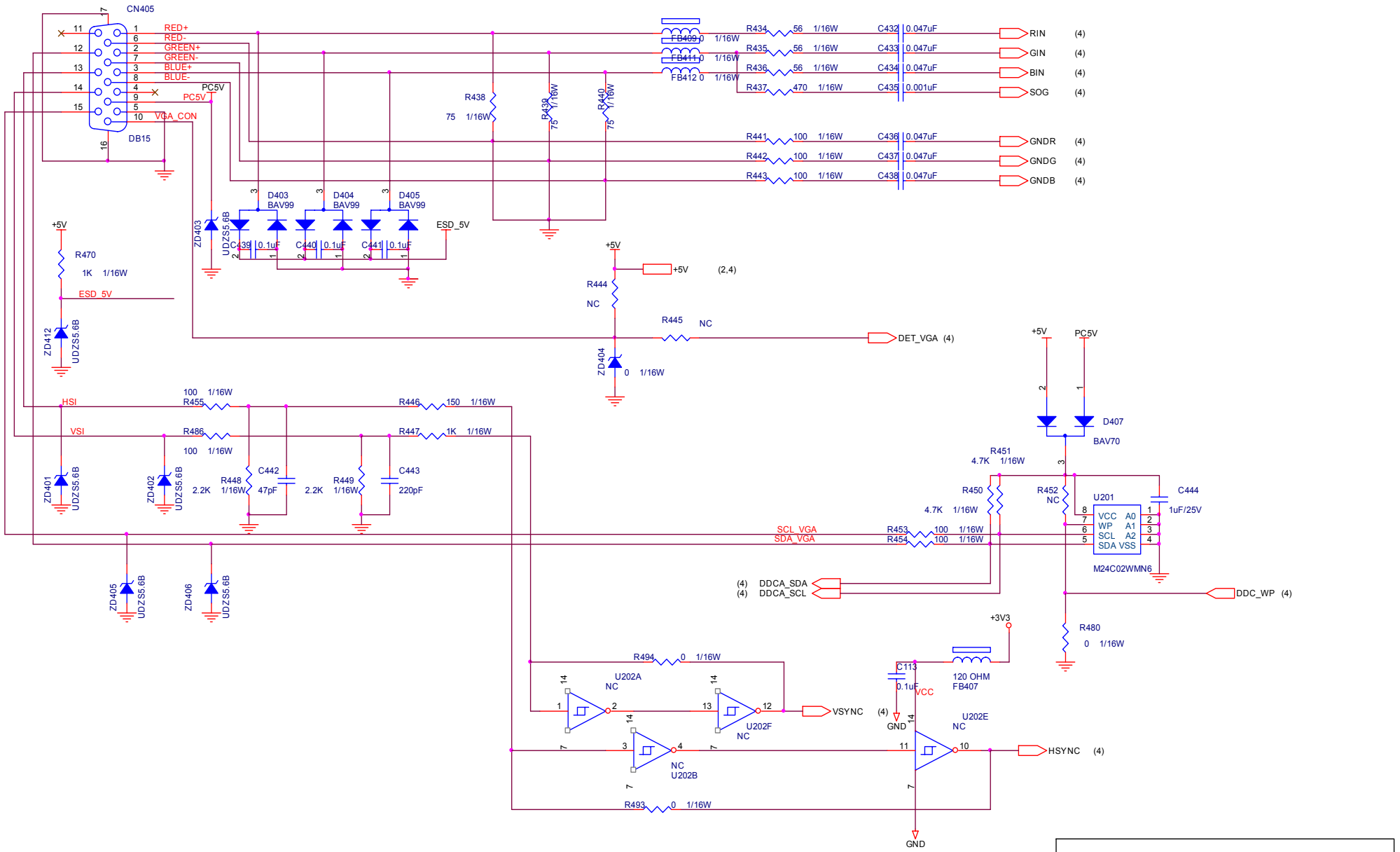


## 6. Schematic

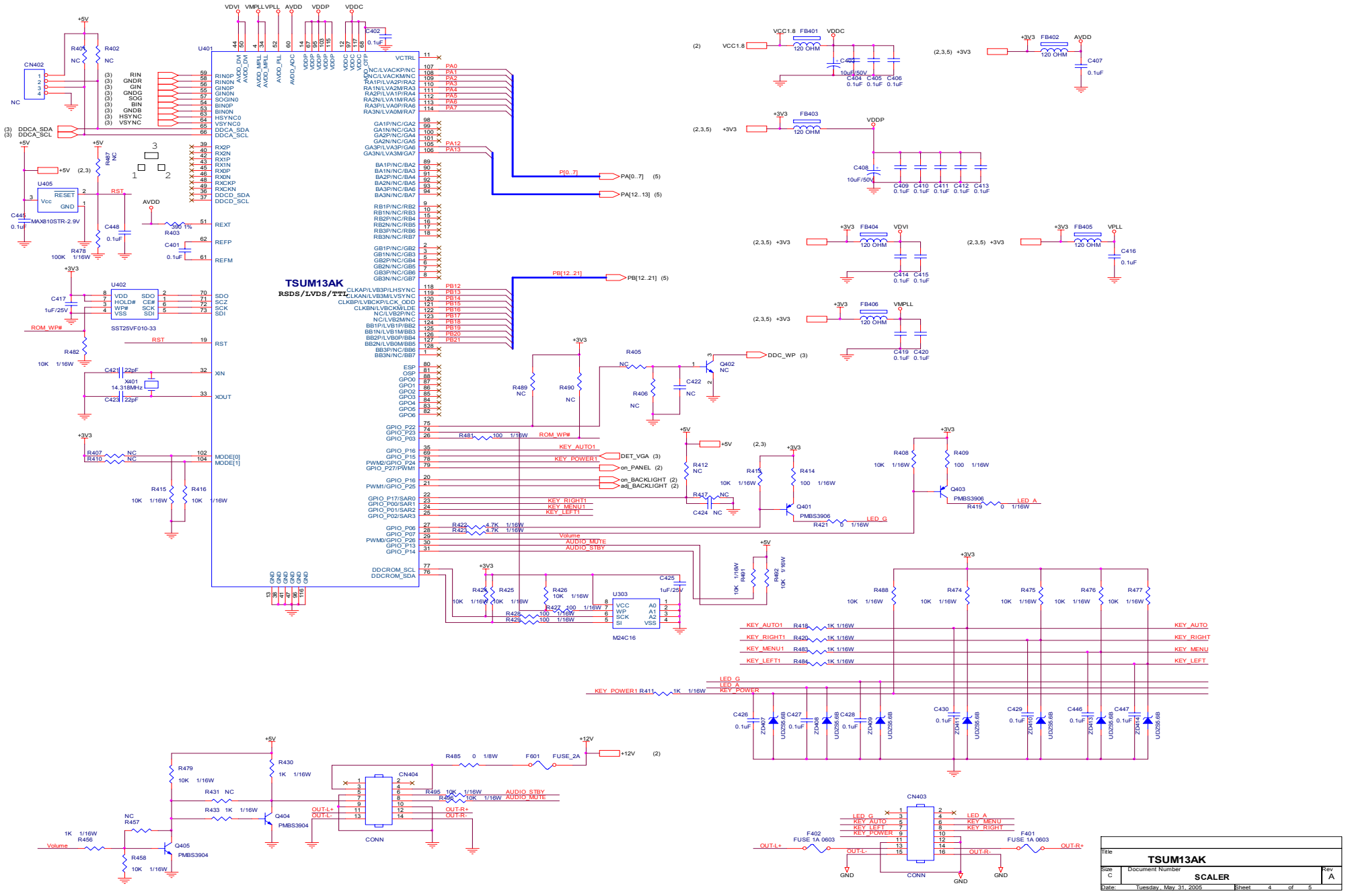
### 6.1 Main Board

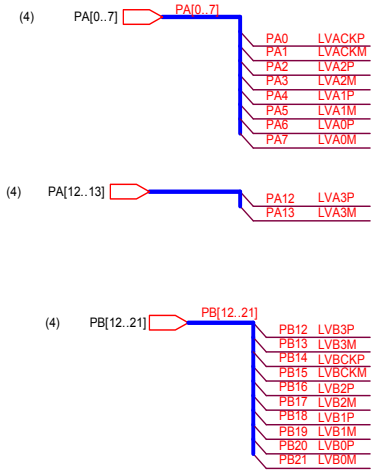


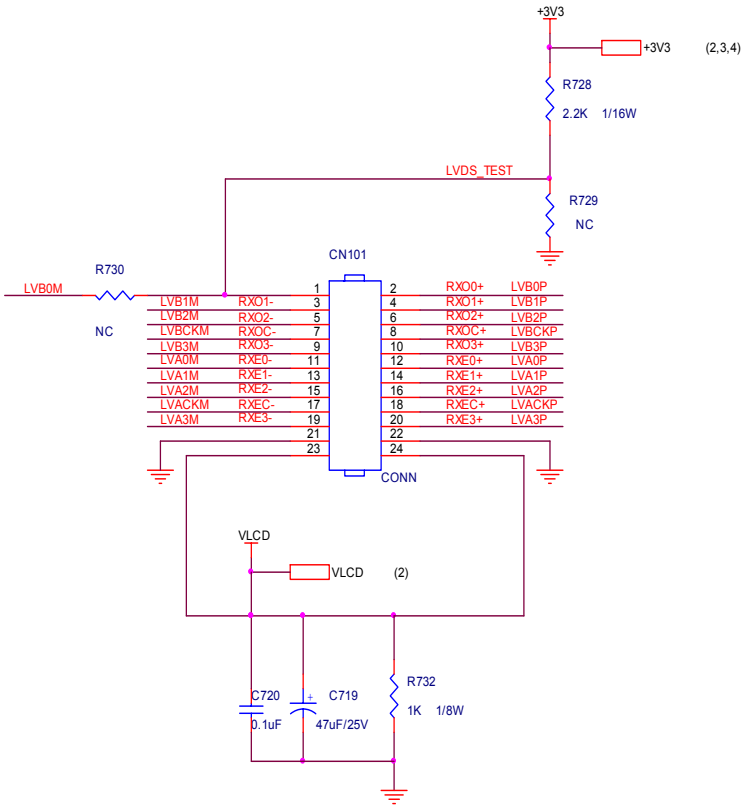

+3V3
+3V3 (3,4,5)
AIC1084-18PM
TO-263
U602
VIN VOUT
ADJ
VCC1.8
VCC1.8 (4)
+5V
Q602
AO3401L
L602
22uH
layout together
C610
100uF/25V
C604
0.1uF
PGATE
D602
SSM54
R605
22 1/16W
C609
220uF/25V
C612
0.001uF
C601
47uF/25V
C602
47uF/25V
C603
0.1uF
U601
LM3485
VIN FB
PGATE N.C
PWGND AGND
ADJ ISENSE
C614
0.001uF
R606
33K 1/16W
C613
0.001uF
R607
33K 1/16W 1%
C611
0.001uF
keep shorter
R608
20K 1/16W
keep away from L602
+12V
CN701
C706
0.1uF
C707
100uF/25V
GND
+12V
5V
BL_ON
BL_ADJ
(3,4)
120 OHM
FB701
FUSE_1.5A F602
CONN
C709
0.1uF
C710
100uF/25V
C711
0.1uF
R708
10K 1/16W
R710 NC
R711
10K 1/16W
R712 4.7K 1/16W
Q703
PMBS3904
on_BACKLIGHT (4)
TO-263
U702
PANEL3.3
C702
NC
C713
NC
C712
NC
C714
NC
R703
NC
R706 NC
R701
1K 1/16W
R705 4.7K 1/16W
(4) Adj_BACKLIGHT
Q701
PMBS3904
R707
1K 1/16W
C708
1uF/25V
R702
0 1/16W
R715
NC
R716
NC
R717
4.7K 1/16W
R714
10K 1/16W
R731
1K 1/16W
R723 51K 1/16W
C701
NC
Q704
AO3401L
VLCD
(5)
FB414
NC
FB413
120 OHM
(4) on_Panel
R725
NC
Q706
NC
C718
NC
C715
NC
C717
47uF/25V
Title
TSUM13AK
Size B
Document Number
POWER
Rev A
Date: Wednesday, June 01, 2005
Sheet 2 of 5




| | | |
|---|---|---|
| Title | TSUM13AK | |
| Size B | Document Number INPUT | Rev A |
| Date: Tuesday, May 31, 2005 | Sheet 3 of 5 | |

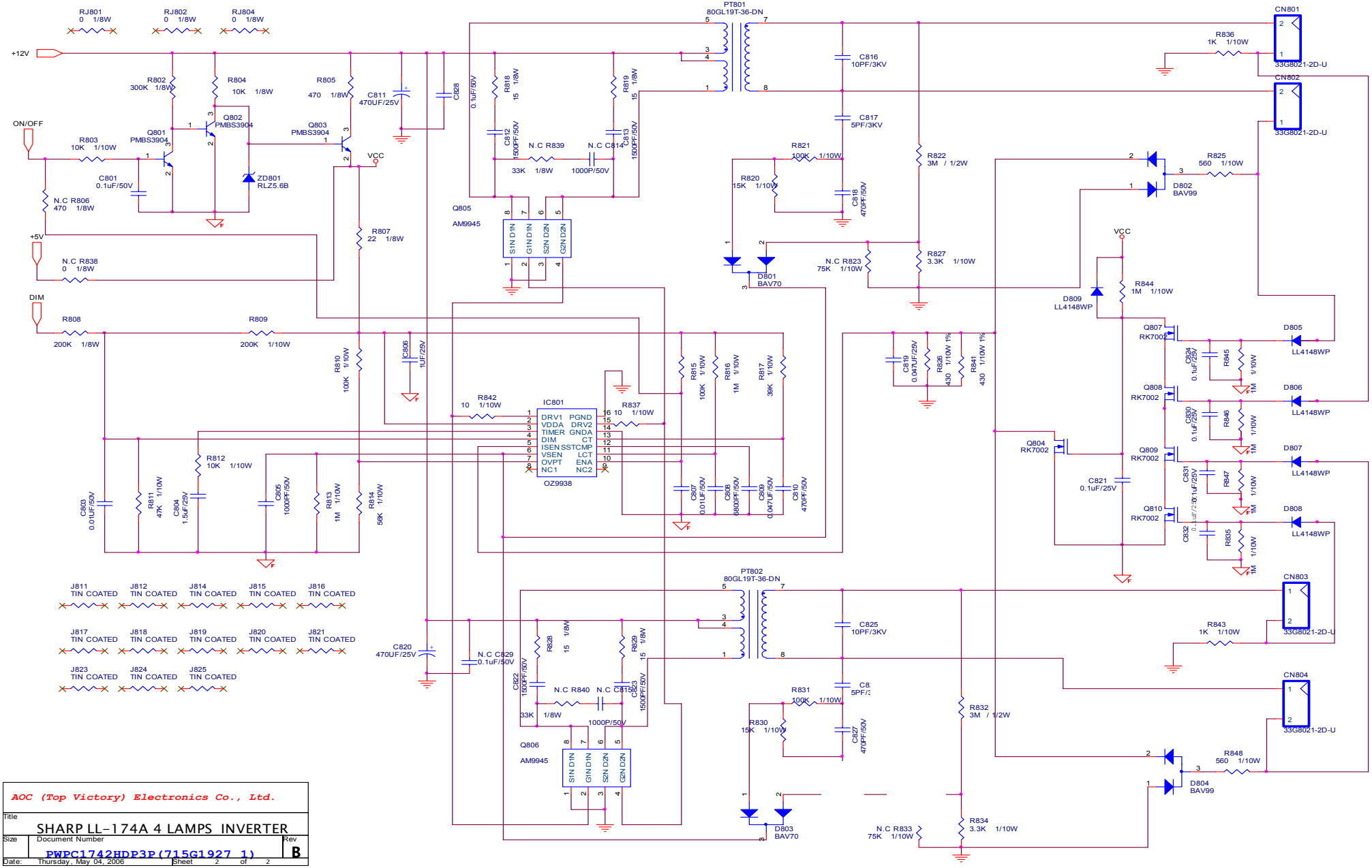

TSUM13AK
RSDS/LVDS/TTL
U401
U402
SST25VF010-33
X401
14.318MHz
U405
MAX810STR-2.9V
U303
M24C16
CN402
CN403
CN404
CONN
Q401
Q402
Q403
Q404
Q405
PMBS3906
F401
F402
FUSE 1A 0603
F601
FUSE_2A
DDCROM_SCL
DDCROM_SDA
DDCA_SDA
DDCA_SCL
KEY_AUTO1
KEY_RIGHT1
KEY_MENU1
KEY_LEFT1
KEY_POWER1
ROM_WP#
AUDIO_MUTE
AUDIO_STBY
Volume
DET_VGA (3)
on_PANEL (2)
on_BACKLIGHT (2)
adj_BACKLIGHT (2)
DDC_WP (3)
LED_G
LED_A
OUT-L+
OUT-L-
OUT-R+
OUT-R-
P[0..7]
PA[0..7] (5)
PB[12..21]
PB[12..21] (5)
Title
TSUM13AK
Size C
Document Number
SCALER
Rev A
Date: Tuesday, May 31, 2005
Sheet 4 of 5



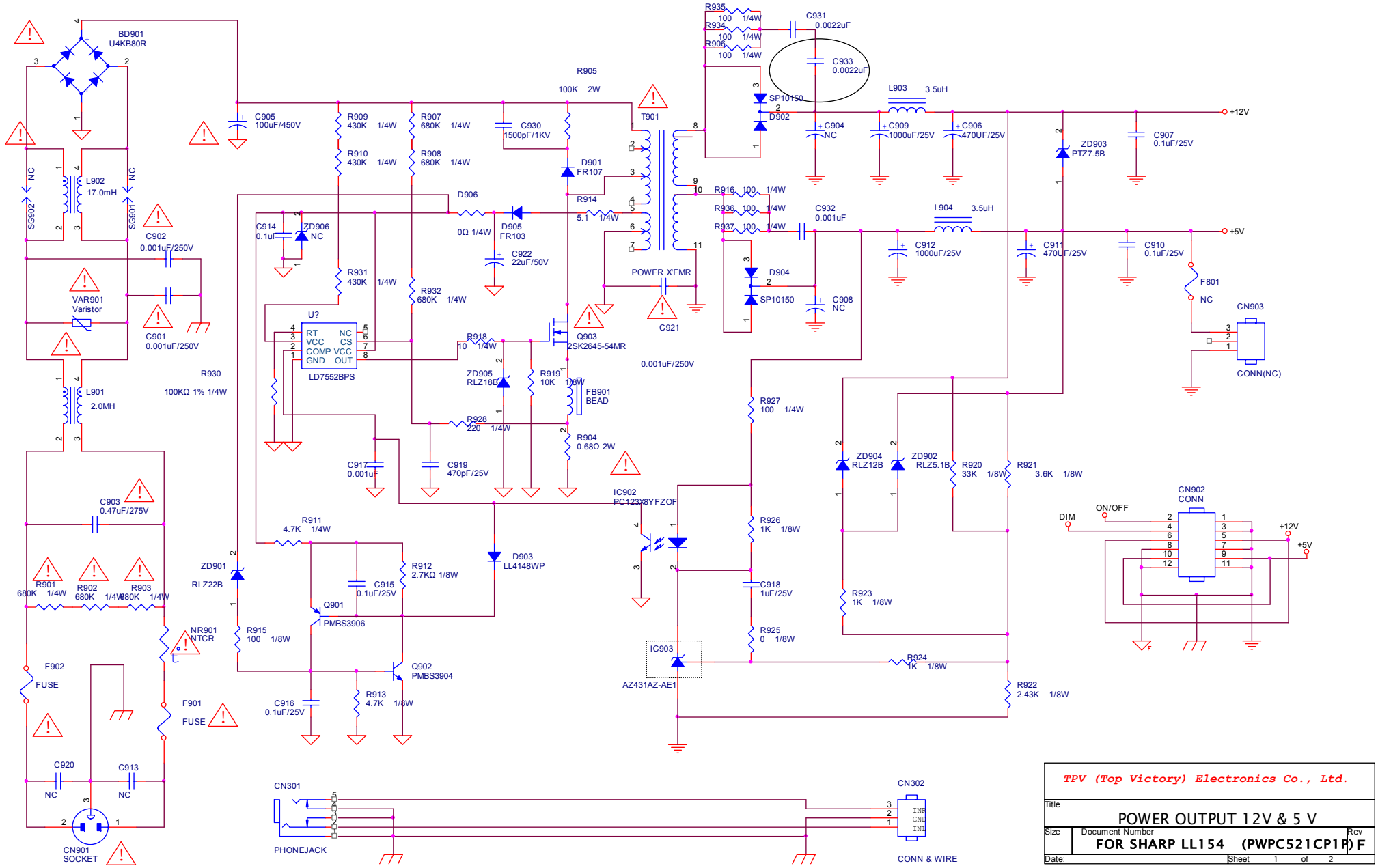




| | | |
|---|---|---|
| Title | TSUM13AK | |
| Size B | Document Number PANEL INTERFACE | Rev A |
| Date: Tuesday, May 31, 2005 | Sheet 5 of 5 | |

## 6.2 Inverter Board

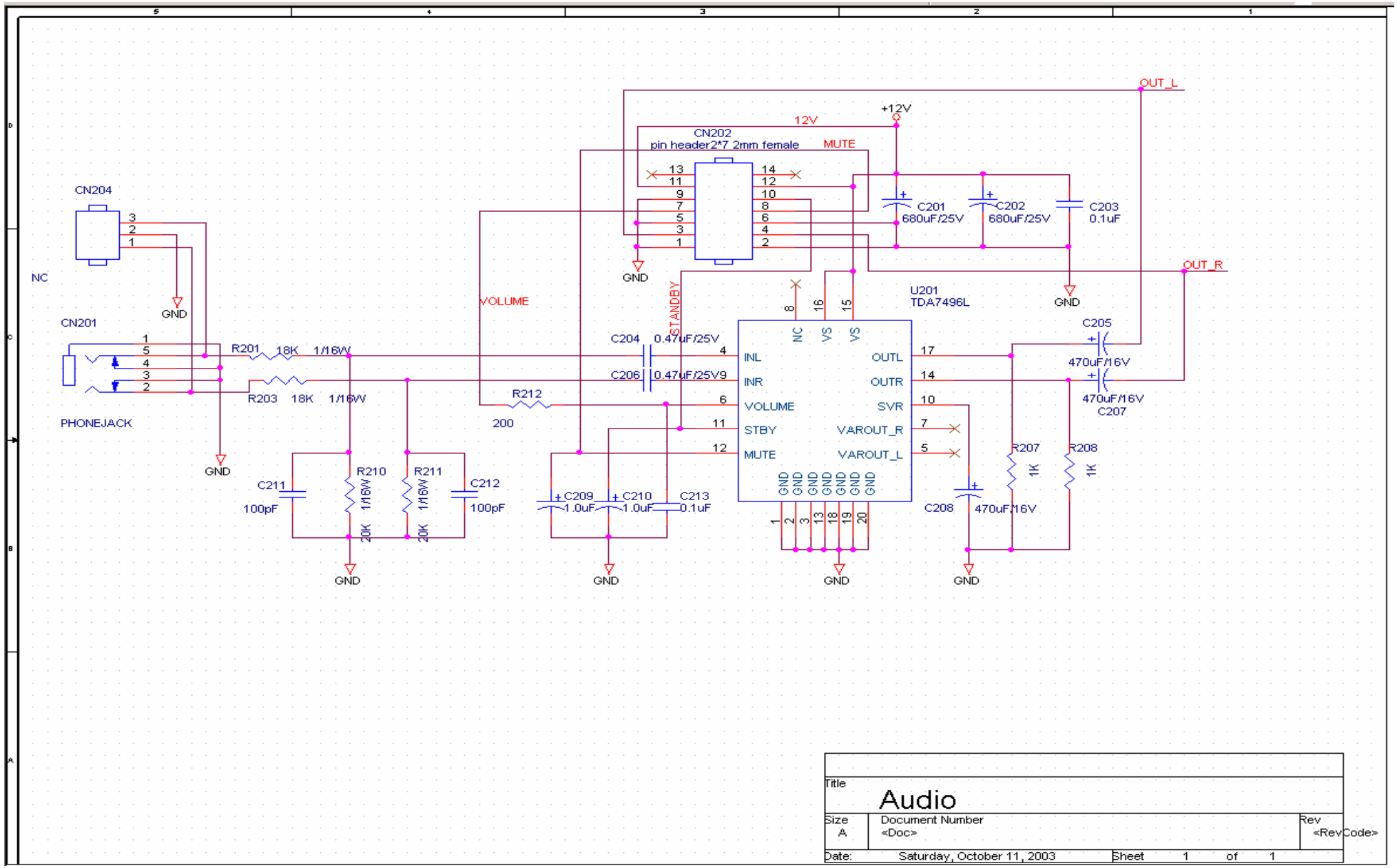


## 6.3 Adapter Board



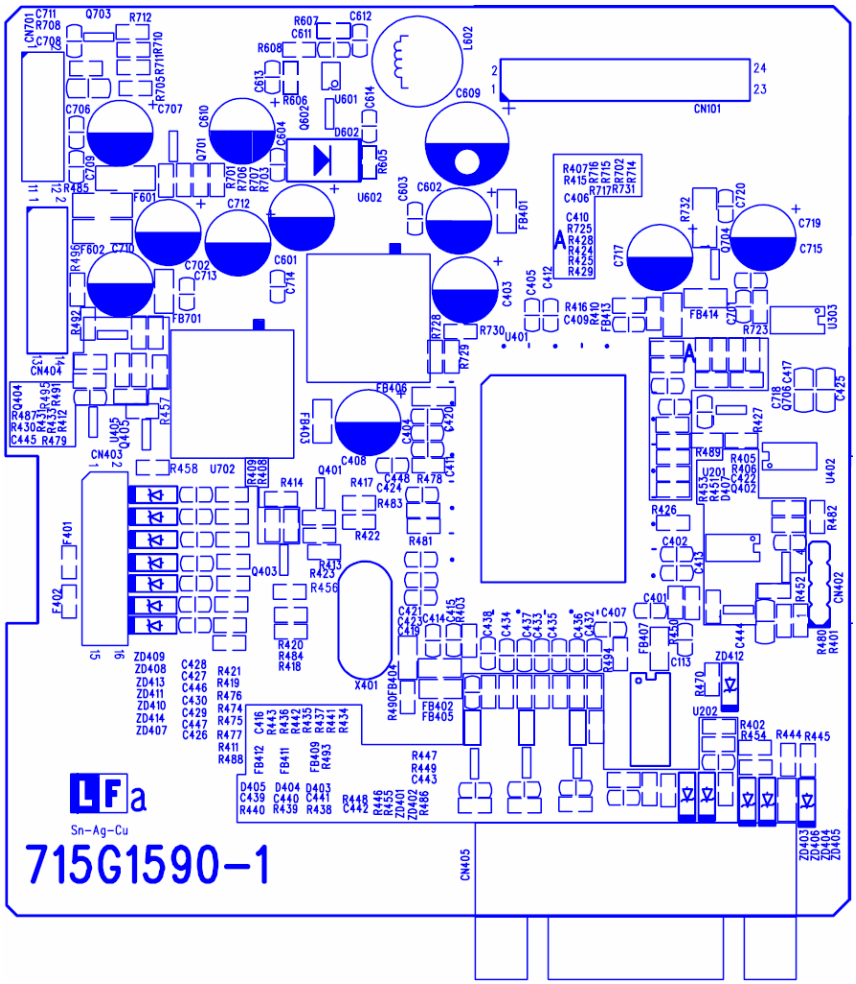

| | | |
|---|---|---|
| TPV (Top Victory) Electronics Co., Ltd. | | |
| Title | POWER OUTPUT 12V & 5 V | |
| Size | Document Number FOR SHARP LL154 (PWPC521CP1P) | Rev F |
| Date: | Sheet 1 of 2 | |

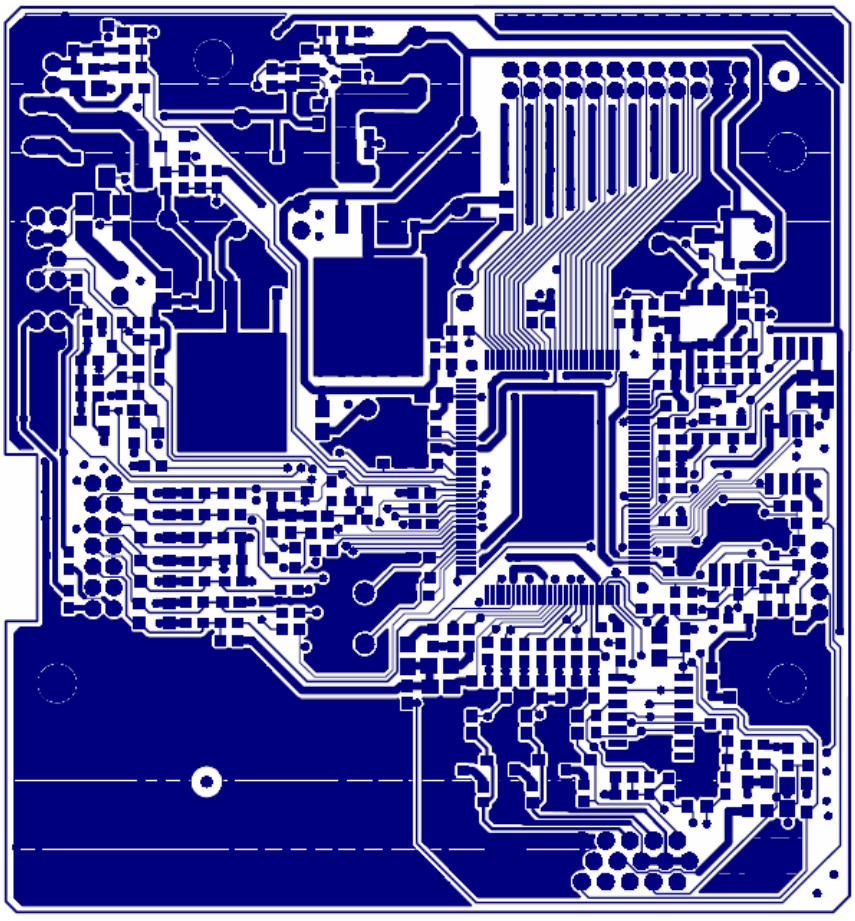
## 6.4 Audio Board

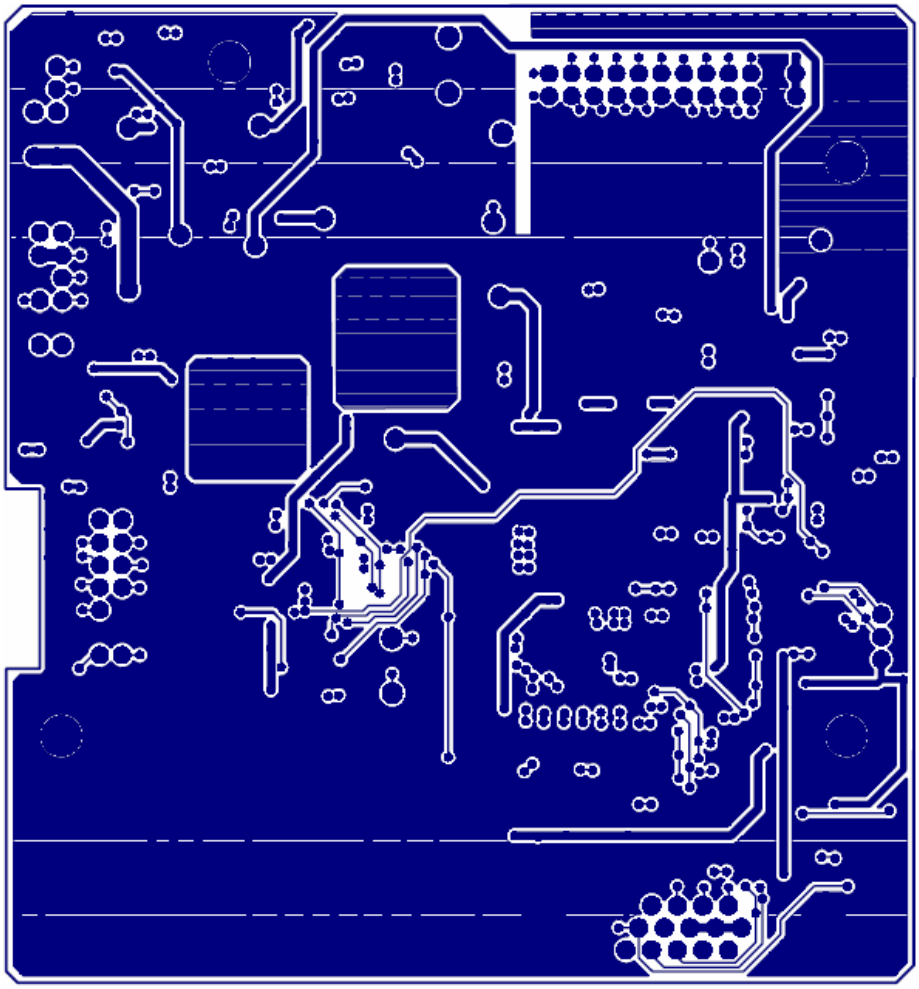


## 7. PCB Layout

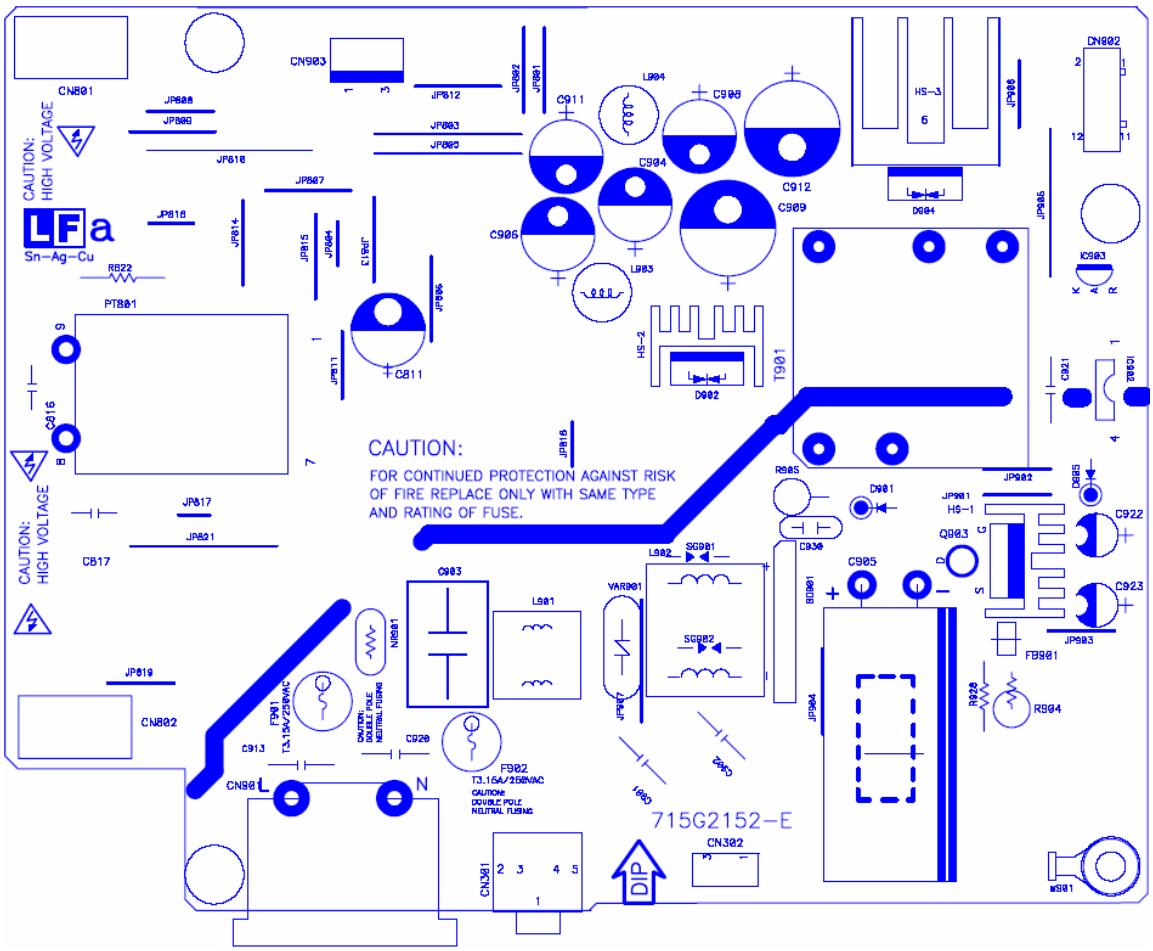
### 7.1 Main Board

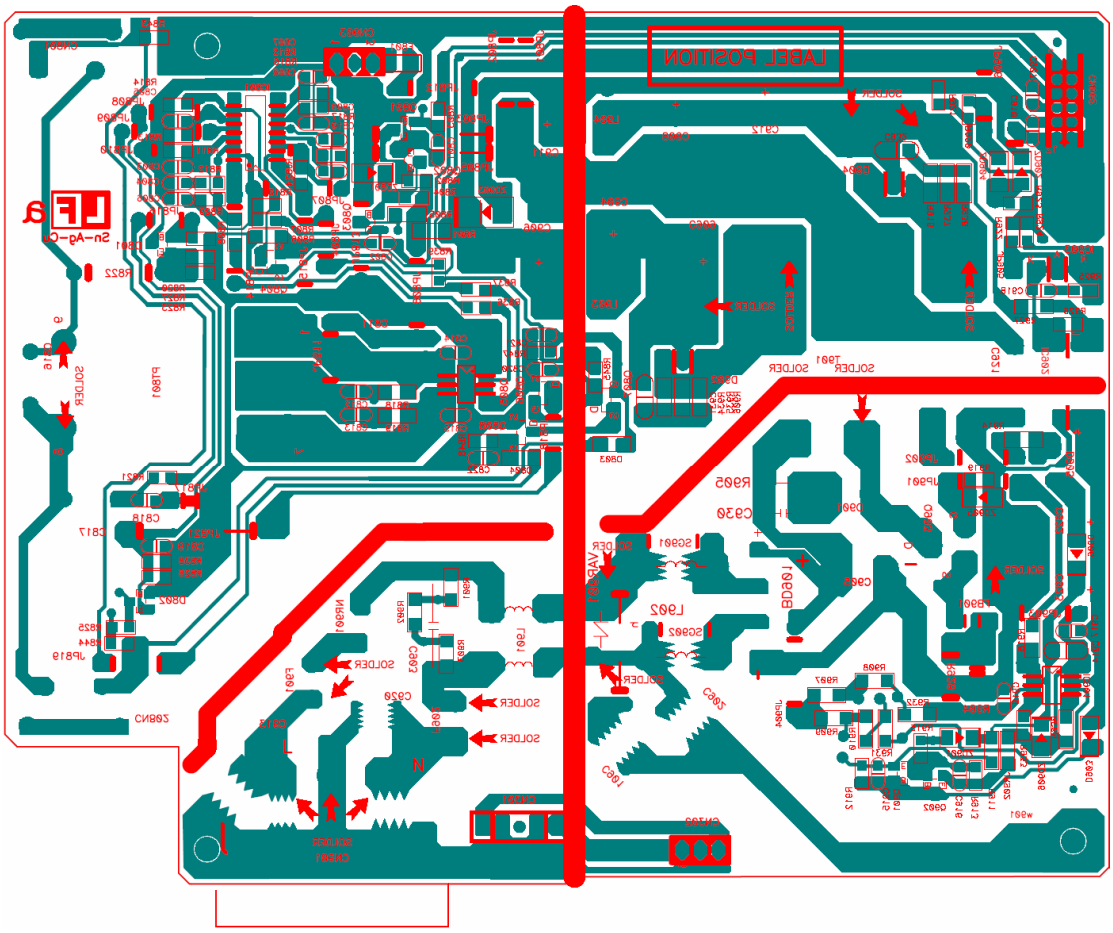


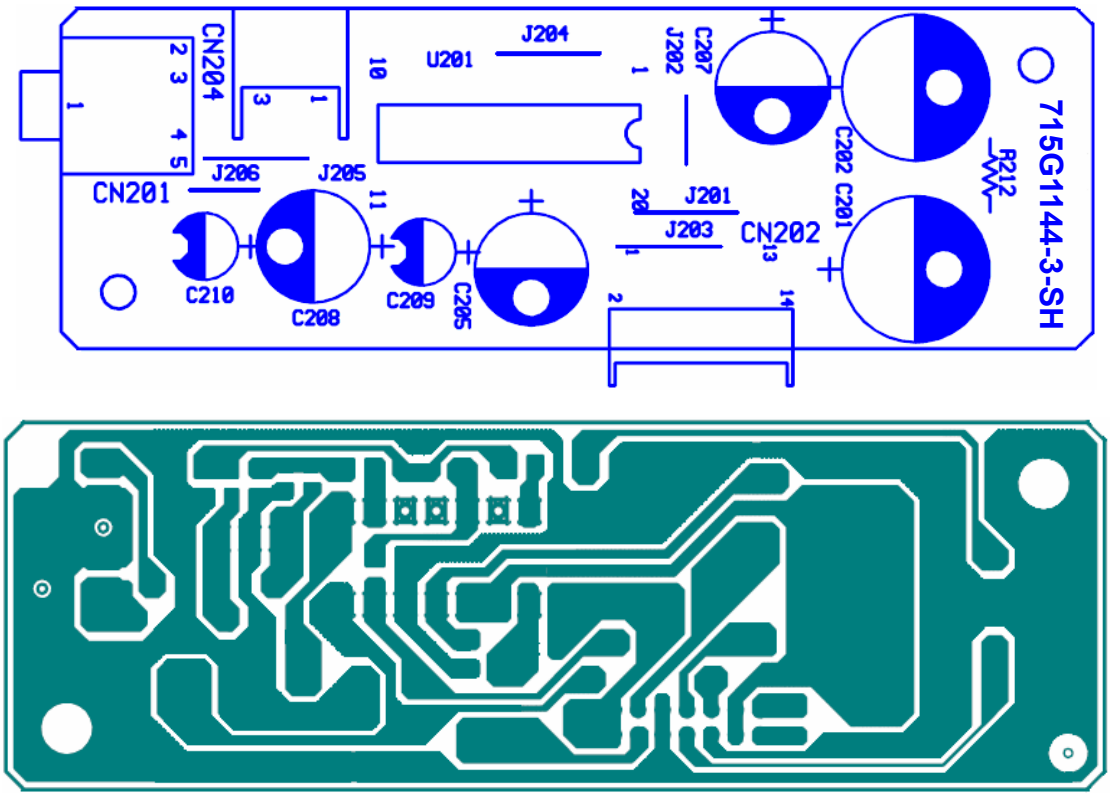


## 7.2 PWPC Board

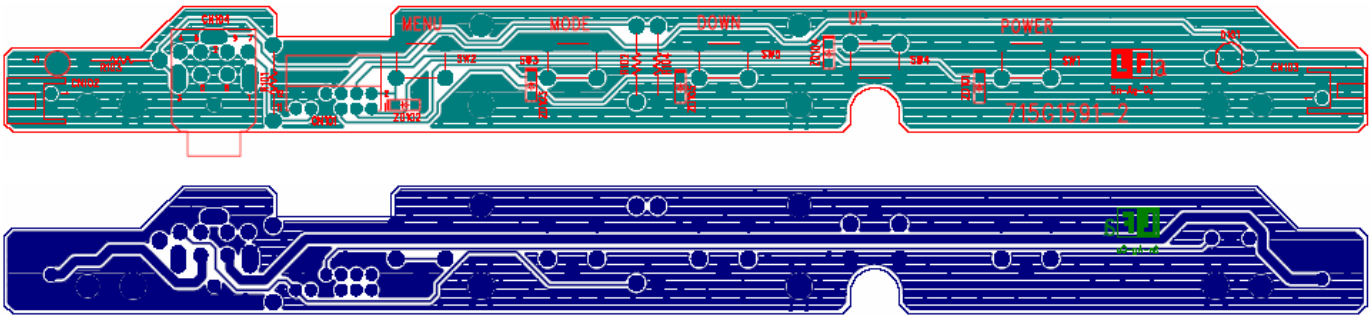




### 7.3 Audio Board



### 7.4 Key Board




## 8. Maintainability

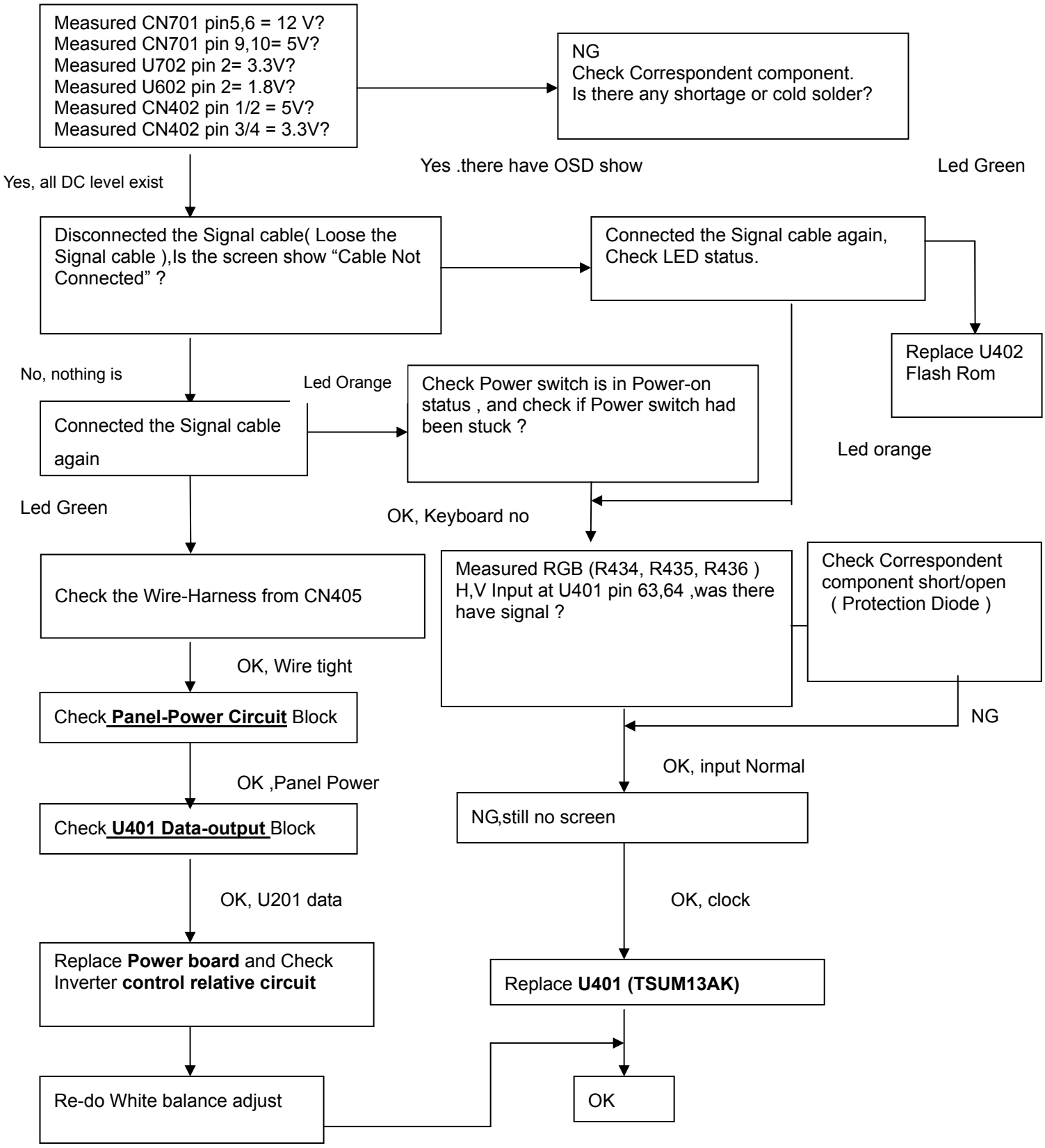
### 8.1 Equipments and Tools Requirement

1. Voltmeter.150
2. Oscilloscope.
3. Pattern Generator.
4. DDC Tool with an IBM Compatible Computer.
5. Alignment Tool.
6. LCD Color Analyzer.
7. Service Manual.
8. User Manual.

## 8.2 Trouble Shooting

### 8.2.1 MAIN BOARD

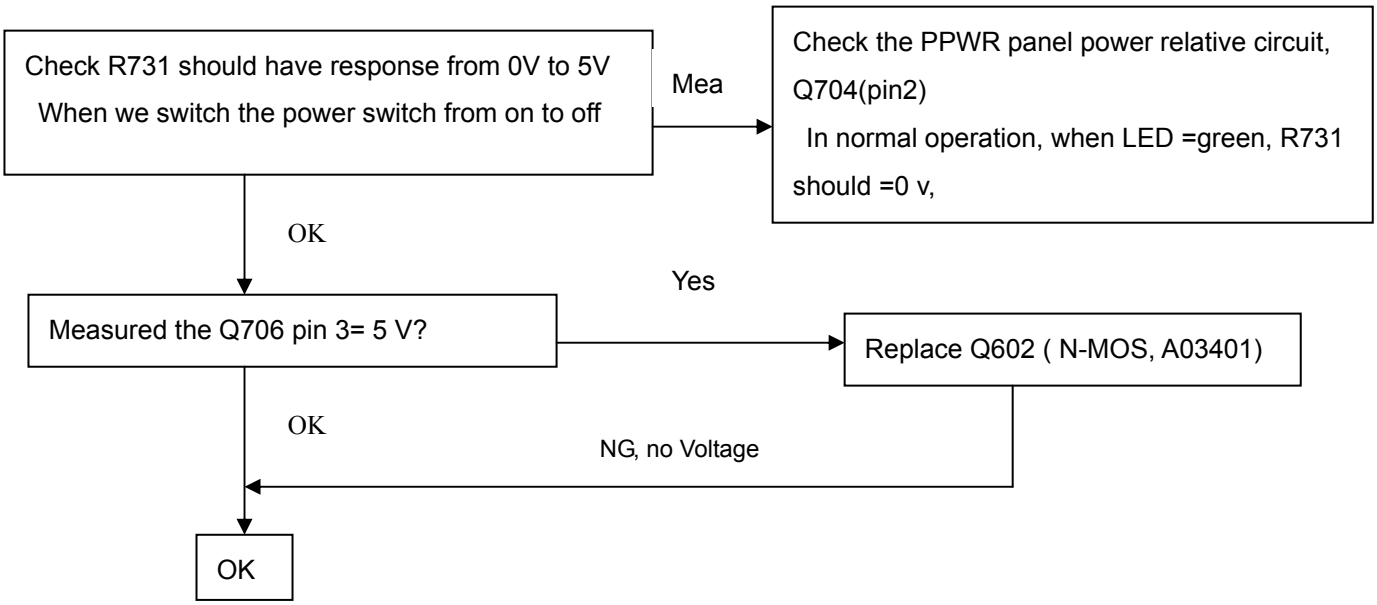
**NO SCREEN APPEAR**


Measured CN701 pin5,6 = 12 V?
Measured CN701 pin 9,10= 5V?
Measured U702 pin 2= 3.3V?
Measured U602 pin 2= 1.8V?
Measured CN402 pin 1/2 = 5V?
Measured CN402 pin 3/4 = 3.3V?
NG
Check Correspondent component.
Is there any shortage or cold solder?
Yes, all DC level exist
Yes .there have OSD show
Led Green
Disconnected the Signal cable( Loose the Signal cable ),Is the screen show “Cable Not Connected” ?
Connected the Signal cable again, Check LED status.
Replace U402 Flash Rom
No, nothing is
Led Orange
Connected the Signal cable again
Check Power switch is in Power-on status , and check if Power switch had been stuck ?
Led orange
Led Green
OK, Keyboard no
Check the Wire-Harness from CN405
Measured RGB (R434, R435, R436 ) H,V Input at U401 pin 63,64 ,was there have signal ?
Check Correspondent component short/open ( Protection Diode )
OK, Wire tight
NG
Check Panel-Power Circuit Block
OK, input Normal
OK ,Panel Power
NG,still no screen
Check U401 Data-output Block
OK, U201 data
OK, clock
Replace Power board and Check Inverter control relative circuit
Replace U401 (TSUM13AK)
Re-do White balance adjust
OK

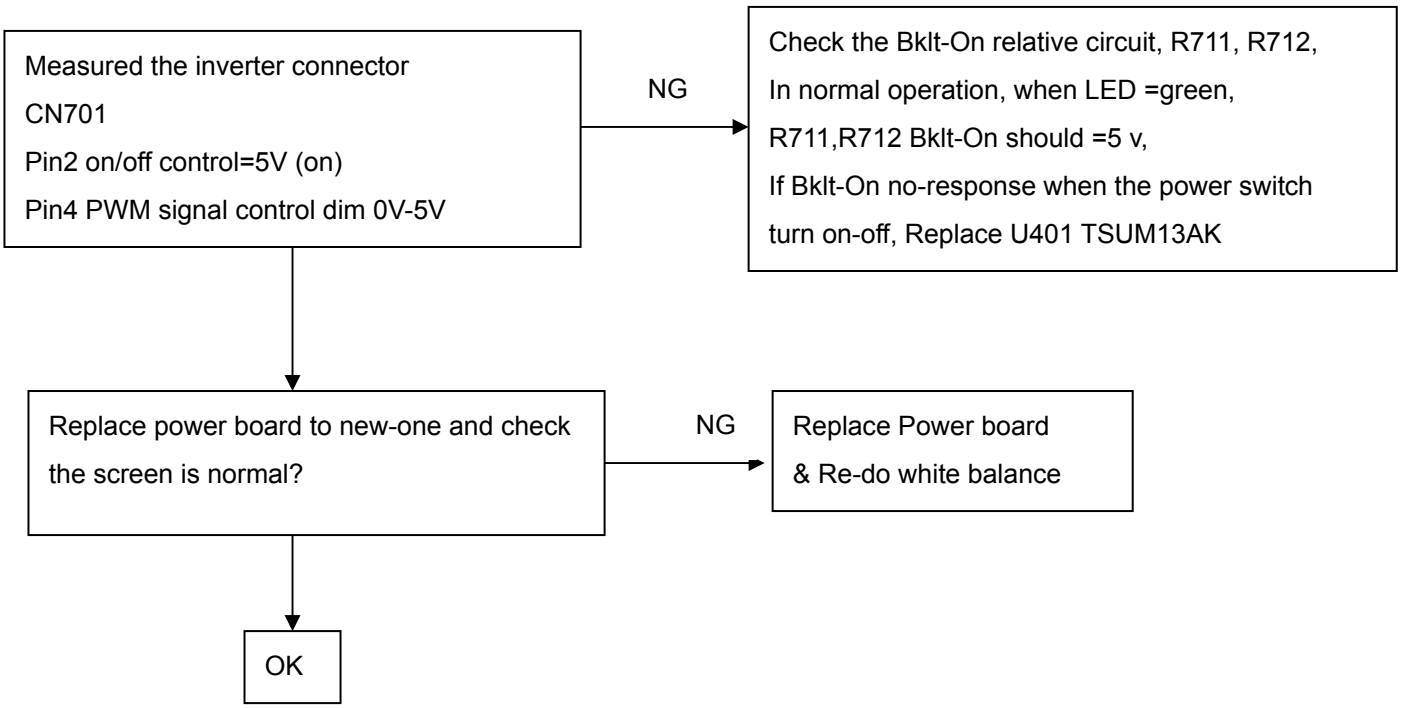
Note:1. If replace “**MAIN-BOARD**” , Please re-do “DDC-content” programmed & “WHITE-Balance”.

2. If replace “**Power Board**” only, Please re-do “ WHITE-Balance”

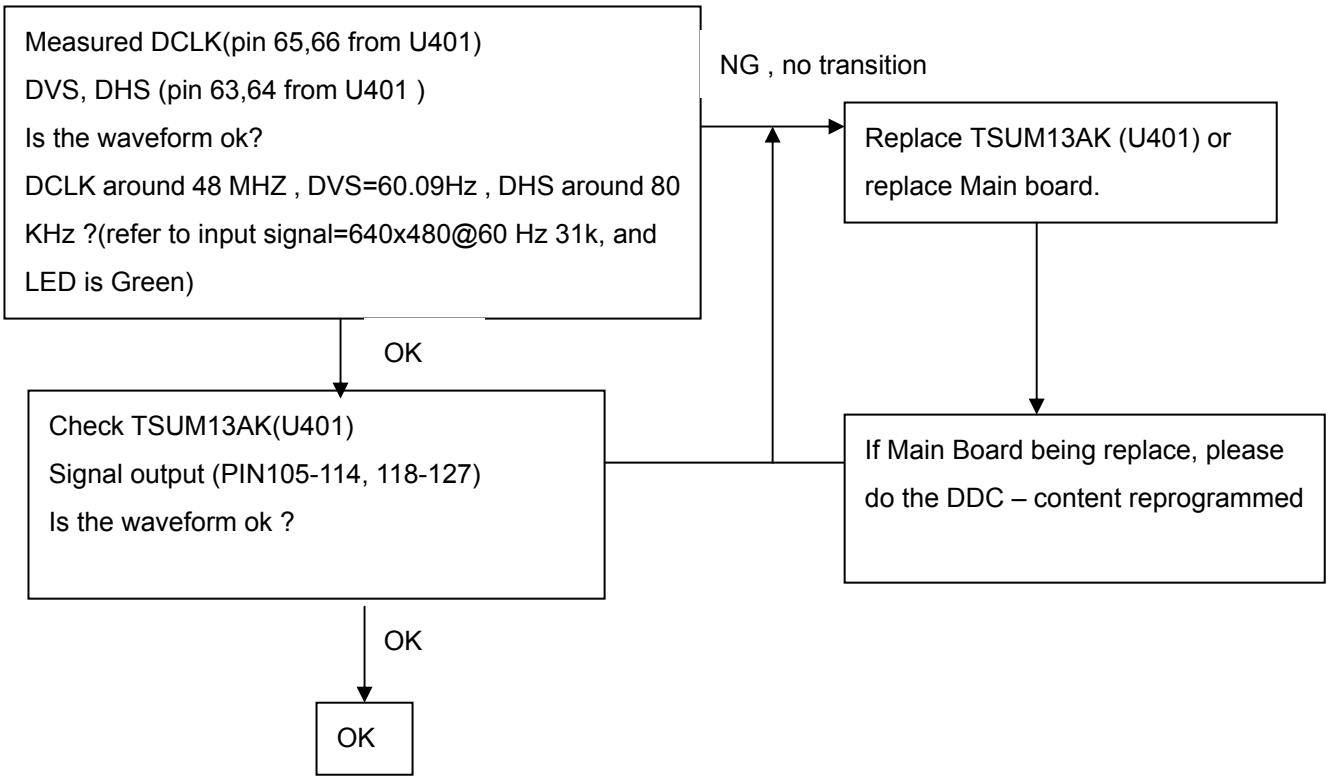
## 2.PANEL POWER CIRCUIT


Check R731 should have response from 0V to 5V
When we switch the power switch from on to off
Mea
Check the PPWR panel power relative circuit, Q704(pin2)
In normal operation, when LED =green, R731 should =0 v,
OK
Yes
Measured the Q706 pin 3= 5 V?
Replace Q602 ( N-MOS, A03401)
OK
NG, no Voltage
OK

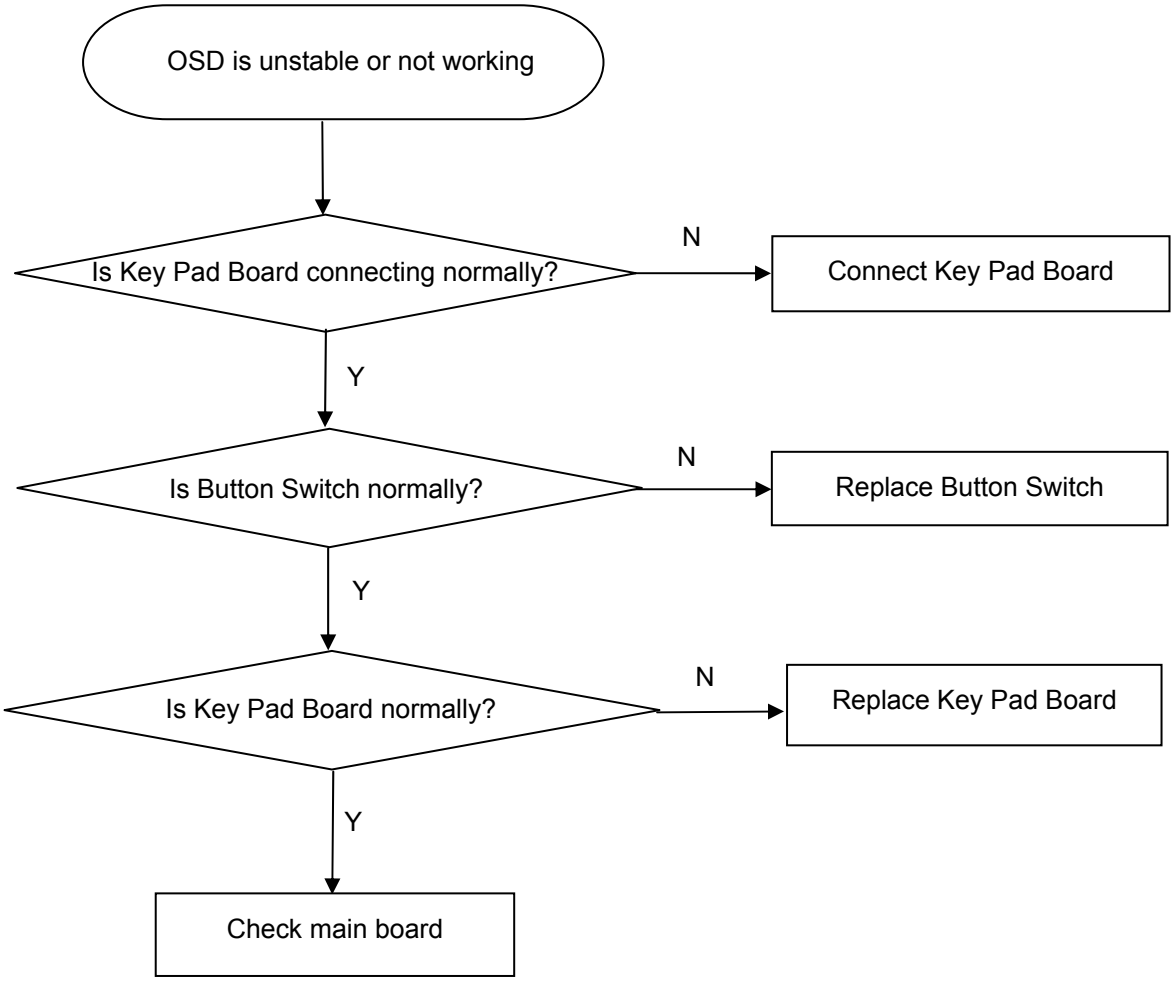
## 3. INVERTER CONTROL RELATIVE CIRCUIT


Measured the inverter connector
CN701
Pin2 on/off control=5V (on)
Pin4 PWM signal control dim 0V-5V
NG
Check the Bklt-On relative circuit, R711, R712,
In normal operation, when LED =green,
R711,R712 Bklt-On should =5 v,
If Bklt-On no-response when the power switch turn on-off, Replace U401 TSUM13AK
Replace power board to new-one and check the screen is normal?
NG
Replace Power board
& Re-do white balance
OK

**4. U4-DATA OUTPUT**

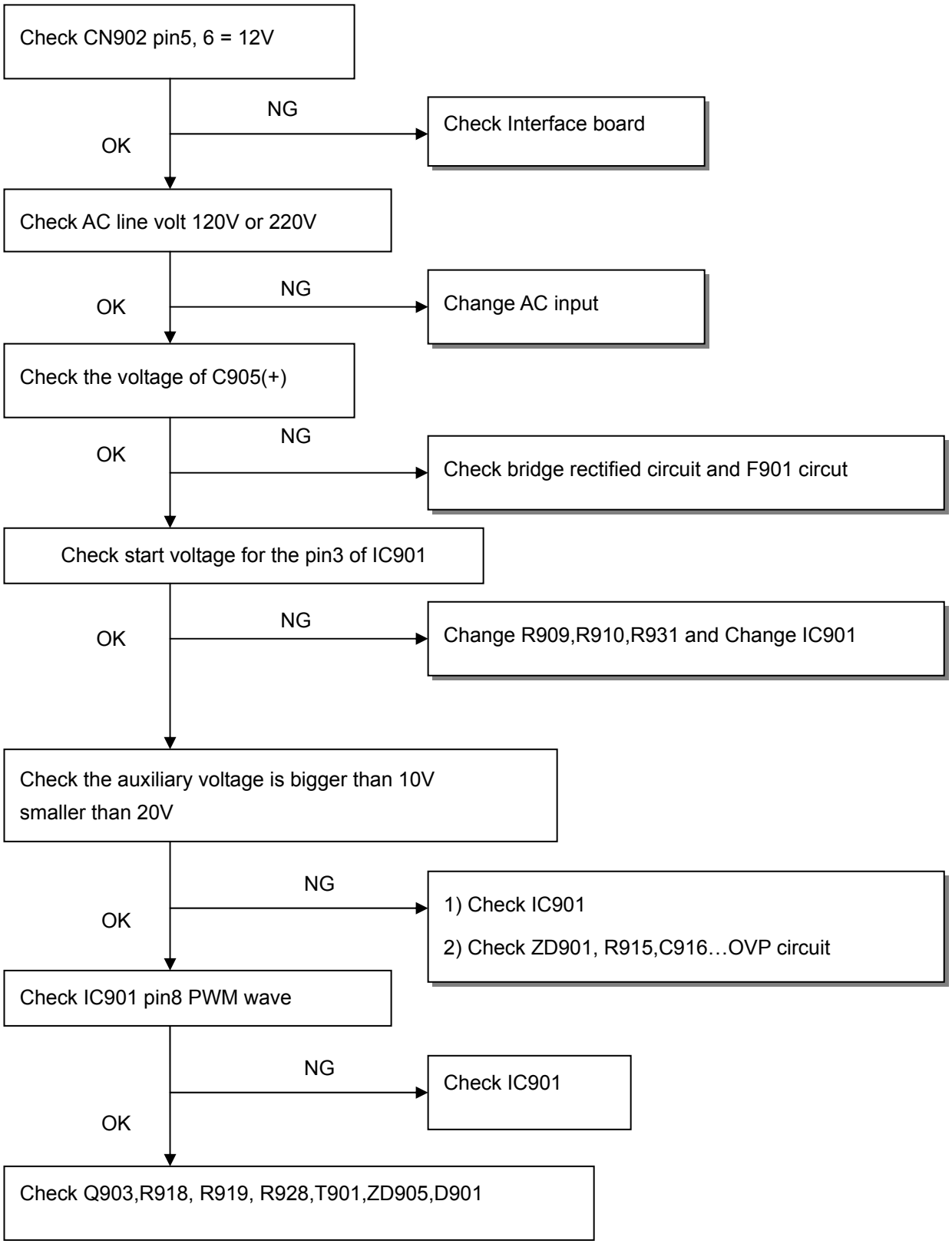

Measured DCLK(pin 65,66 from U401)
DVS, DHS (pin 63,64 from U401 )
Is the waveform ok?
DCLK around 48 MHZ , DVS=60.09Hz , DHS around 80 KHz ?(refer to input signal=640x480@60 Hz 31k, and LED is Green)
NG , no transition
Replace TSUM13AK (U401) or replace Main board.
OK
Check TSUM13AK(U401)
Signal output (PIN105-114, 118-127)
Is the waveform ok ?
If Main Board being replace, please do the DDC – content reprogrammed
OK
OK

**8.2.2 Keypad Board**

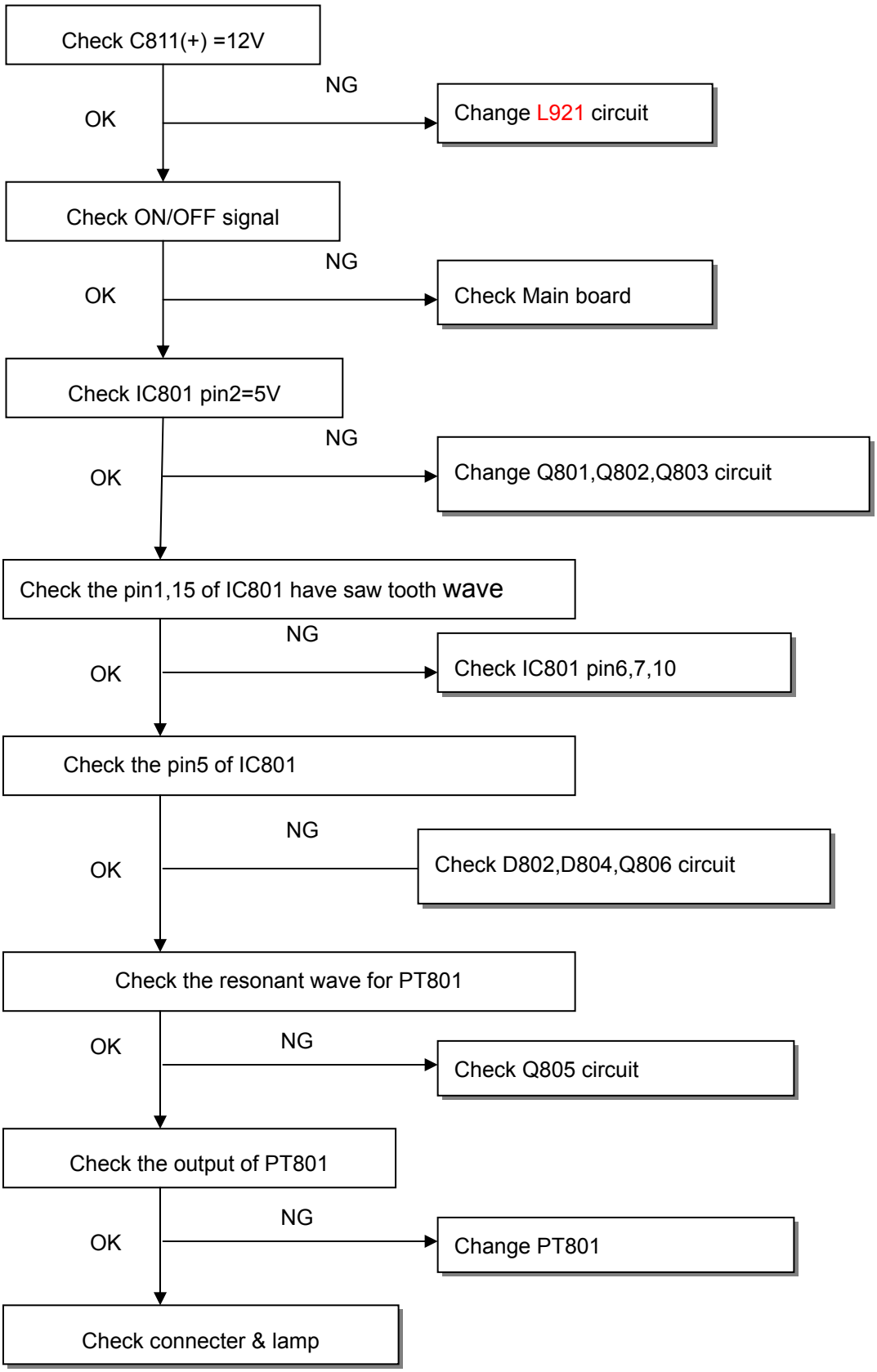


### 8.2.3 Power/Inverter Board

**1.) No power**



**2.) W / LED , No Backlight**



## 9. White-Balance, Luminance Adjustment

Approximately 30 minutes should be allowed for warm up before proceeding White-Balance adjustment.

1. How to do the CA210 MEM. Channel setting

   A. Reference to CA210 user guide

   B. Use “ **SC**” key and “ **NEXT**” key to modify x, y, Y value and use “**ID**” key to modify the TEXT description

   Following is the procedure to do white-balance adjust:

2. Setting the color temp. you want

   A. MEM.CHANNEL 1 (9300K color):

      9300K color temp. parameter is x = 383±20, y = 297±15,

   B. MEM.CHANNEL 2 (7500K color):

      7500K color temp. parameter is x = 299±20, y = 315±15,

   C. MEM.CHANNEL 3 (6500K color):

      6500K color temp. parameter is x = 313±20, y = 329±15,

   D. MEM.CHANNEL 3 (5000K color):

      5000K color temp. parameter is x = 364±20, y = 359±15,

   E. MEM.CHANNEL 3 (4000K color):

      4000K color temp. parameter is x = 282±20, y = 384±15,

3. Into factory mode of SHARP LL-154A

   Turn on power, press the MENU button, pull out the power cord, and then plug the power cord. Then the factory OSD will be at the left top of the panel.

4. Bias adjustment:

   Set the **Contrast** to 64; Adjust the **Brightness** to 31.

5. Gain adjustment:

Move cursor to “-F-” and press MENU key

   A. Adjust 9300K color-temperature

      1. Switch the CA210 to **9300** (with press “MODE” button)
      2. Switch the MEM. Channel to Channel 3 (with up or down arrow on CA210)
      3. The LCD-indicator on CA210 will show x = 283±15, y = 297±15,
      4. Adjust the RED of color1 on factory window until CA210 indicator reached the value R=100
      5. Adjust the GREEN of color1 on factory window until CA210 indicator reached the value G=100
      6. Adjust the BLUE of color1 on factory window until CA210 indicator reached the value B=100
      7. Repeat above procedure (item 4,5) until CA210 R/G value meet the tolerance =100±5
      8. Repeat above procedure (item 6) until CA210 B value meet the tolerance =126±5

   B. Adjust 7500K color-temperature

      1. Switch the CA210 to 7500 (with press “MODE” button)
      2. Switch the MEM. Channel to Channel 3 (with up or down arrow on CA210)
      3. The LCD-indicator on CA210 will show x = 299±15, y = 315±15,
      4. Adjust the RED of color1 on factory window until CA210 indicator reached the value R=100

5. Adjust the GREEN of color1 on factory window until CA210 indicator reached the value G=100
6. Adjust the BLUE of color1 on factory window until CA210 indicator reached the value B=100
7. Repeat above procedure (item 4,5) until CA210 R/G value meet the tolerance =100±5
8. Repeat above procedure (item 6) until CA210 B value meet the tolerance =126±5

C. Adjust 6500K color-temperature

1. Switch the CA210 to STD (with press “MODE” button)
2. Switch the MEM. Channel to Channel 3 (with up or down arrow on CA210)
3. The LCD-indicator on CA210 will show x = 313±15, y = 329±15,
4. Adjust the RED of color1 on factory window until CA210 indicator reached the value R=100
5. Adjust the GREEN of color1 on factory window until CA210 indicator reached the value G=100
6. Adjust the BLUE of color1 on factory window until CA210 indicator reached the value B=100
7. Repeat above procedure (item 4,5) until CA210 R/G value meet the tolerance =100±5
8. Repeat above procedure (item 6) until CA210 B value meet the tolerance =126±5

D. Adjust 5000K color-temperature

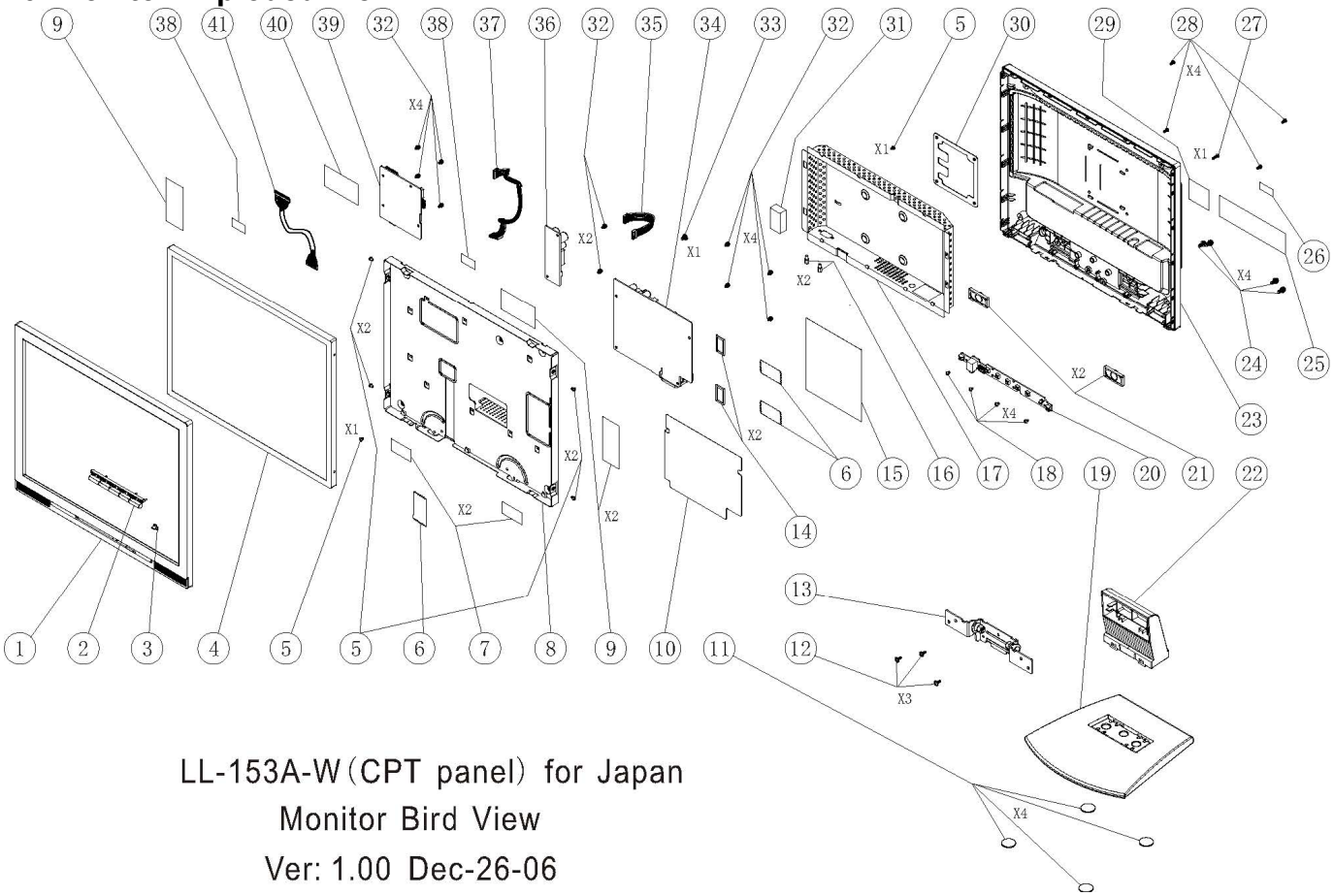
1. Switch the CA210 to 5000 (with press “MODE” button)
2. Switch the MEM. Channel to Channel 3 (with up or down arrow on CA210)
3. The LCD-indicator on CA210 will show x = 346±15, y = 359±15,
4. Adjust the RED of color1 on factory window until CA210 indicator reached the value R=100
5. Adjust the GREEN of color1 on factory window until CA210 indicator reached the value G=100
6. Adjust the BLUE of color1 on factory window until CA210 indicator reached the value B=100
7. Repeat above procedure (item 4,5) until CA210 R/G value meet the tolerance =100±5
8. Repeat above procedure (item 6) until CA210 B value meet the tolerance =126±5

E. Adjust 4000K color-temperature

1. Switch the CA210 to 4000 (with press “MODE” button)
2. Switch the MEM. Channel to Channel 3 (with up or down arrow on CA210)
3. The LCD-indicator on CA210 will show x = 282±15, y = 384±15,
4. Adjust the RED of color1 on factory window until CA210 indicator reached the value R=100
5. Adjust the GREEN of color1 on factory window until CA210 indicator reached the value G=100
6. Adjust the BLUE of color1 on factory window until CA210 indicator reached the value B=100
7. Repeat above procedure (item 4,5) until CA210 R/G value meet the tolerance =100±5
8. Repeat above procedure (item 6) until CA210 B value meet the tolerance =126±5

C. Turn the Power-button off to quit from factory mode.

## 10. Monitor Exploded View




LL-153A-W（CPT panel） for Japan
Monitor Bird View
Ver: 1.00 Dec-26-06

| Index | Part Name | Part Number | User Number | Qty | Unit |
|---|---|---|---|---|---|
| 1 | Front Cover | 34G1630-A8M-T | 0NY1630A8M00T | 1 | pcs |
| 2 | Function Button | 33G4893-8M-T | 0NY489308M00T | 1 | pcs |
| 3 | Power Lens | 33G4894-1 | 0NY4894001000 | 1 | pcs |
| 4 | Panel | 750GLC50-P1Q-13N | 0NYLC50P1Q13N | 1 | pcs |
| 5 | Screw | M1G330-4-120 | 0NY0330004120 | 6 | pcs |
| 6 | Yellow Tape | 52G6019-1 | 0NY6019001000 | 9 | cm |
| 7 | Non-woven Fabrics | 52G8001-8 | 0NY8001008000 | 2 | pcs |
| 8 | Main Frame | J15G0030 1 | 0NY0030001000 | 1 | pcs |
| 9 | Aluminum Tape | 52G1-210-A | 0NY000121000A | 3 | pcs |
| 10 | Mylar MF | J52G8025-11-823 | 0NY8025011823 | 1 | pcs |
| 11 | Foot | 12G394-3 | 0NY0394003000 | 4 | pcs |
| 12 | Screw | Q1G1030-8-120 | 0NY1030008120 | 3 | pcs |
| 13 | Hinge | 37G495-1 | 0NY0495001000 | 1 | pcs |
| 14 | Pin Connector | 11G6055-1 | 0NY6055001000 | 2 | pcs |
| 15 | Mylar Shield | 52G6025-11-582 | 0NY6025011582 | 1 | pcs |
| 16 | D-SUB Screw | J02G247-SH | 0NY02470SH000 | 2 | pcs |
| 17 | Main Shield | 85G707-1 | 0NY0707001000 | 1 | pcs |
| 18 | Screw | Q1G330-6-120 | 0NY0330006120 | 4 | pcs |
| 19 | Base | 34G1632-8M-T | 0NY163208M00T | 1 | pcs |
| 20 | Key Board | KEPC6JA9 | 0NY6JA9000000 | 1 | pcs |
| 21 | Speaker | 78G314-2-K | 0NY031400200K | 2 | pcs |

| Index | Part Name | Part Number | User Number | Qty | Unit |
|---|---|---|---|---|---|
| 22 | Stand | 34G1631-8M-T | 0NY163108M00T | 1 | pcs |
| 23 | Rear Cover | 34G1298-8M-ST | 0NY129808M0ST | 1 | pcs |
| 24 | Screw | AM1G1740-10-120 | 0NY1740010120 | 4 | pcs |
| 25 | ID Lable | 40G950-843-2B | 0NY095084302B | 1 | pcs |
| 26 | S/N Lable | 40G100-843-1A | 0NY010084301A | 1 | pcs |
| 27 | Screw | Q1G330-10-120 | 0NY0330010120 | 1 | pcs |
| 28 | Screw | M1G330-6-120 | 0NYM330006120 | 4 | pcs |
| 29 | Caution Label | 40G581-843-7A | 0NY058184307A | 1 | pcs |
| 30 | Vesa Bracket | 15G5791-1 | 0NY5791001000 | 1 | pcs |
| 31 | Thermal Pad | 12G6051-1 | 0NY6051001000 | 1 | pcs |
| 32 | Screw | M1G1730-6-120 | 0NY1730006120 | 10 | pcs |
| 33 | Screw | M1G1140-5-120 | 0NY1140005120 | 1 | pcs |
| 34 | Power Board | PWPC521CP1P | 0NY521CP1P000 | 1 | pcs |
| 35 | Wireharness/Power | 95G8014-12-36 | 0NY8014012036 | 1 | pcs |
| 36 | Audio Board | AUPC560KB8P | 0NY560KB8P000 | 1 | pcs |
| 37 | Wireharness/Key pad | 95G8014-16-46 | 0NY8014016046 | 1 | pcs |
| 38 | EVA Washer | 44G3231-15 | 0NY3231015000 | 2 | pcs |
| 39 | Main Board | CBPC6CM5XWJ1 | 0NY6CM5XWJ100 | 1 | pcs |
| 40 | Black Tape | 52G1-150-SH | 0NY00011500SH | 7 | cm |
| 41 | Wireharness | 95G8018-24-701-D | 0NY8018024701 | 1 | pcs |
| | | | | | |

| The Front Cover Ass'Y(0NY1630A8MA0T) includes following parts: | | | | | |
|---|---|---|---|---|---|
| 1 | Front Cover | 34G1630-A8M-T | 0NY1630A8M00T | 1 | pcs |
| 2 | Function Button | 33G4893-8M-T | 0NY489308M00T | 1 | pcs |
| 3 | Power Lens | 33G4894-1 | 0NY4894001000 | 1 | pcs |

LL-153A-W（CPT panel） for Japan
Part List of Monitor Bird View
Ver: 1.00 Dec-26-06

## 11. BOM List

### T56CM5NJXXXWAJ

| Location | Part No. | Description |
|---|---|---|
| | AUPC560KB8P | AUPC BOARD FOR SMT |
| | CBPC6CM5XWJ1 | MAIN BOARD |
| | KEPC6JA9 | KEY BOARD |
| | PWPC521CP1P | G2152-F-X-X-1-20061121 |
| | 11G6055 1 | 口字框 |
| | 11G6082 1 | CLAMP |
| | 12G 394 3 | FOOT |
| | 12G6051 1 | Thermal Pal |
| | 15G5791 1 | VESA BRACKET |
| | 34G1298 8M ST | REAR COVER |
| | 34G1630A8M T | FRONT COVER |
| | 34G1631 8M T | STAND |
| | 34G1632 8M T | BASE |
| | 37G 495 1 | HINGE |
| | 44G3231 15 | EVA WASHER |
| | 45G8088607SH3 | EPE BAG FOR MONITOR |
| | 52G 1150 SH | BLACK TAPE |
| | 52G 1210 A | AL Foil |
| | 52G6019 1 | YELLOW TAPE |
| | 52G6022 22 GP | Adhesive tape |
| | 52G6025 11582 | MYLAR SHIELD |
| | 52G8001 8 | NON-WOVEN FABRICS |
| | 78G 314 2 K | LCD Speaker |
| | 85G 707 1 | MAIN SHIELD |
| | 89G 17356G556 | AUDIO CABLE |
| | 89G 728GAB901 | SIGNAL CABLE |
| | 89G401D18NISA | POWER CORD |
| | 95G8014 12 36 | HARNESS 12P-12P 80mm |
| | 95G8014 16 46 | HARNESS 12P-16P 180MM |
| | 95G8018 24701 D | WIRE HARNESS 20P-24P 115 |
| XN01A | M1G 330 4120 | SCREW |
| XN01B | M1G 330 4120 | SCREW |
| XN01C | M1G 330 4120 | SCREW |
| XN01A | M1G 330 6120 | SCREW |
| XN01A | M1G1140 5120 | SCREW |
| XN01A | M1G1730 6120 | M3*6 |
| XN01B | M1G1730 6120 | M3*6 |

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|---|---|---|
| XN01C | M1G1730 6120 | M3*6 |
| XN01A | Q1G 330 6120 | SCREW M3X6MM |
| XN01A | Q1G 330 10120 | SCREW |
| XN01A | Q1G1030 8120 | SCREW 3X8 NI |
| | 705GP503 1A SH | PAPER PAD ASS’Y |
| | 750GLC50P1Q13N | PANEL LCD CLAA150XP01Q 0 |
| XN01A | AM1G1740 10120 | SCREW |
| D-SUB | J02G 247 SH | SCREW |
| | J15G0030 1 | MAIN FRAME |
| | J44GP504624 1A | CARTON |
| | J45G8088609SH1 | EPE BAG FOR BASE |
| | J52G8025 11823 | INSULATE SHEET |
| | AUPC560KB8SMTP | AUPC BOARD FOR SMT |
| | 12G 408 10 | THERMAL PAD |
| CN204 | 33G3278 3 | WAFER 3P PLUG 2.55mm |
| CN202 | 33G802414C H | WAFER |
| U201 | 56G 616 1 | AMPLIFIER IC E-TDA7496L |
| R212 | 61G 60222452T | 220KOHM 5% 1/6W |
| C205 | 67G215L471 3N | 470UF/16V |
| C207 | 67G215L471 3N | 470UF/16V |
| C208 | 67G215L471 3N | 470UF/16V |
| C201 | 67G215L681 4N | 680UF 25V |
| C202 | 67G215L681 4N | 680UF 25V |
| | 90G6093 1 | HEAT SINK |
| | AUPC560KB8AIP | AUPC BOARD FOR AI |
| R207 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R208 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R201 | 61G0603183 | CHIP resistors 1/10W |
| R203 | 61G0603183 | CHIP resistors 1/10W |
| R210 | 61G0603203 | RST CHIP 20K 1/10W 5% |
| R211 | 61G0603203 | RST CHIP 20K 1/10W 5% |
| R202 | 61G0603204 | RST CHIP 200K 1/10W 5% |
| C211 | 65G0805101 31 | CHIP 100PF 50V NPD 0805 |
| C212 | 65G0805101 31 | CHIP 100PF 50V NPD 0805 |
| C203 | 65G0805104 32 | CHIP 0.1UF 50V X7R 0805 |
| C213 | 65G0805104 32 | CHIP 0.1UF 50V X7R 0805 |
| C204 | 65G0805474 22 | CHIP 0.47UF 25V Y5V 0805 |
| C206 | 65G0805474 22 | CHIP 0.47UF 25V Y5V 0805 |
| C209 | 67G 2151097NT | 1UF/50V |
| C210 | 67G 2151097NT | 1UF/50V |

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|---|---|---|
| | 715G1144 3 SH | PCB |
| | SMTC6CM5XWJ1 | MAIN BOARD |
| CN404 | 33G801714H H | PIN2*7 |
| CN701 | 33G8027 12 | WAFER 2*6P 2.0MM R/A |
| CN403 | 33G8027 16 | WAFER 16PIN 2.0MM DIP |
| CN101 | 33G8027 24 H | PIN 24P 2.0MM RIGHT ANGL |
| | 40G 45762412B | CBPC LABEL |
| C403 | 67G215V100 7N | LOW ESR EC 10UF 50V NCC |
| C408 | 67G215V100 7N | LOW ESR EC 10UF 50V NCC |
| C610 | 67G215V101 4N | LOW ESR EC 100UF 25V NCC |
| C707 | 67G215V101 4N | LOW ESR EC 100UF 25V NCC |
| C710 | 67G215V101 4N | LOW ESR EC 100UF 25V NCC |
| C609 | 67G215V221 4N | LOW ESR EC 220UF 25V NCC |
| C601 | 67G215V470 4N | LOW ESR EC 47UF 25V NCC |
| C602 | 67G215V470 4N | LOW ESR EC 47UF 25V NCC |
| C717 | 67G215V470 4N | LOW ESR EC 47UF 25V NCC |
| C719 | 67G215V470 4N | LOW ESR EC 47UF 25V NCC |
| L602 | 73G 253158 L | CHOKE COIL |
| CN405 | 88G353A15F HJ | D-SUB 15PIN |
| | 90G6250 1 GP | Radiator |
| X401 | 93G 22 53 | CRYSTAL 14.31818MHZ HC-4 |
| U601 | 56G 133 32 NS | IC LM3485 MSOP-8 |
| U401 | 56G 562102 | TSUM13AK-LF PQFP-128 |
| U602 | 56G 563 34 | IC AIC1084-18PM TO-263 |
| U405 | 56G 643 5A | MAX810STRG SOT-23 IC |
| U201 | 56G1133 34 | IC M24C02-WMN6TP |
| U303 | 56G1133 56 | IC M24C16-WMN6TP |
| U402 | 56G1133 81 X | SST25LF020A-33-4C-SAE |
| Q404 | 57G 417 4 | PMBS3904/PLILIPS |
| Q405 | 57G 417 4 | PMBS3904/PLILIPS |
| Q701 | 57G 417 4 | PMBS3904/PLILIPS |
| Q703 | 57G 417 4 | PMBS3904/PLILIPS |
| Q401 | 57G 417 6 | PMBS3906 PNP |
| Q403 | 57G 417 6 | PMBS3906 PNP |
| Q602 | 57G 763 1 | AO3401L |
| Q704 | 57G 763 1 | AO3401L |
| F401 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| F402 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| FB409 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| FB411 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |

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|---|---|---|
| FB412 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| R419 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| R421 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| R480 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| R493 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| R494 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| R702 | 61G0603000 | CHIPR 0OHM +-5% 1/10W |
| R409 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R414 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R427 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R428 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R429 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R441 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R442 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R443 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R445 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R453 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R454 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R455 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R481 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R486 | 61G0603101 | CHIPR 100OHM +-5% 1/10W |
| R411 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R418 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R420 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R430 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R433 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R447 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R456 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R470 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R483 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R484 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R701 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R707 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R731 | 61G0603102 | CHIPR 1KOHM +-5% 1/10W |
| R408 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R413 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R415 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R416 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R424 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R425 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |

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|---|---|---|
| R426 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R458 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R474 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R475 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R476 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R477 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R479 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R488 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R490 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R491 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R492 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R495 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R496 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R708 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R711 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R714 | 61G0603103 | CHIPR 10KOHM+-5% 1/10W |
| R478 | 61G0603104 | CHIPR 100KOHM +-5% 1/10W |
| R446 | 61G0603151 | CHIPR 150 OHM +-5% 1/10W |
| R608 | 61G0603200 2F | RST CHIP 20K 1/10W 1% |
| R605 | 61G0603220 | CHIPR 22OHM+-5% 1/10W |
| R448 | 61G0603222 | CHIPR 2.2KOHM+-5% 1/10W |
| R449 | 61G0603222 | CHIPR 2.2KOHM+-5% 1/10W |
| R728 | 61G0603222 | CHIPR 2.2KOHM+-5% 1/10W |
| R607 | 61G0603330 2F | RST CHIP 33K 1/10W 1% |
| R606 | 61G0603333 | RST CHIP 33K 1/10W 5% |
| R403 | 61G0603390 0F | 390OHM +-1% |
| R437 | 61G0603471 | CHIPR 470OHM+-5%1/10W |
| R405 | 61G0603472 | CHIP 4.7KOHM +-5% 1/10W |
| R422 | 61G0603472 | CHIP 4.7KOHM +-5% 1/10W |
| R450 | 61G0603472 | CHIP 4.7KOHM +-5% 1/10W |
| R451 | 61G0603472 | CHIP 4.7KOHM +-5% 1/10W |
| R705 | 61G0603472 | CHIP 4.7KOHM +-5% 1/10W |
| R712 | 61G0603472 | CHIP 4.7KOHM +-5% 1/10W |
| R717 | 61G0603472 | CHIP 4.7KOHM +-5% 1/10W |
| R723 | 61G0603513 | CHIP 51K OHM |
| R434 | 61G0603560 | RST CHIP 56R 1/10W 5% |
| R435 | 61G0603560 | RST CHIP 56R 1/10W 5% |
| R436 | 61G0603560 | RST CHIP 56R 1/10W 5% |
| R438 | 61G0603750 | CHIPR 75OHM+-5%1/10W |
| R439 | 61G0603750 | CHIPR 75OHM+-5%1/10W |

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|---|---|---|
| R440 | 61G0603750 | CHIPR 75OHM+-5%1/10W |
| ZD404 | 61G0805000 | RST CHIP MAX 0R05 1/8W |
| F601 | 61G1206000 | CHIP resistors 1/3W |
| F602 | 61G1206000 | CHIP resistors 1/3W |
| R485 | 61G1206000 | CHIP resistors 1/3W |
| R732 | 61G1206102 | CHIP 1K OHM 5% 1/8W |
| C435 | 65G0603102 32 | CHIP 1000PF 50 X7R |
| C611 | 65G0603102 32 | CHIP 1000PF 50 X7R |
| C612 | 65G0603102 32 | CHIP 1000PF 50 X7R |
| C613 | 65G0603102 32 | CHIP 1000PF 50 X7R |
| C614 | 65G0603102 32 | CHIP 1000PF 50 X7R |
| C113 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C401 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C402 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C404 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C405 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C406 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C407 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C409 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C410 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C411 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C412 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C413 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C414 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C415 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C416 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C419 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C420 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C426 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C427 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C428 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C429 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C430 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C439 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C440 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C441 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C445 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C446 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C447 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C448 | 65G0603104 32 | CHIP 0.1UF 50V X7R |

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|---|---|---|
| C603 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C604 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C701 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C706 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C709 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C711 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C720 | 65G0603104 32 | CHIP 0.1UF 50V X7R |
| C421 | 65G0603220 31 | CHIP 22PF 50V NPO |
| C423 | 65G0603220 31 | CHIP 22PF 50V NPO |
| C443 | 65G0603221 31 | CAP:CER 220PF 5% 50V SMT |
| C442 | 65G0603470 31 | CHIP 47PF 50V NPO |
| C432 | 65G0603473 32 | CHIP 47NF 50V X7R |
| C433 | 65G0603473 32 | CHIP 47NF 50V X7R |
| C434 | 65G0603473 32 | CHIP 47NF 50V X7R |
| C436 | 65G0603473 32 | CHIP 47NF 50V X7R |
| C437 | 65G0603473 32 | CHIP 47NF 50V X7R |
| C438 | 65G0603473 32 | CHIP 47NF 50V X7R |
| C417 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 |
| C425 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 |
| C444 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 |
| C708 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 |
| FB401 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB402 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB403 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB404 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB405 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB406 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB407 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB413 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| FB701 | 71G 56K121 M GP | CHIP BEAD 120OHM T |
| D407 | 93G 64 42 P | BAV70 DIODE |
| D403 | 93G 6433P | BAV99 SOT-23 |
| D404 | 93G 6433P | BAV99 SOT-23 |
| D405 | 93G 6433P | BAV99 SOT-23 |
| ZD401 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD402 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD403 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD405 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD406 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD407 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |

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|---|---|---|
| ZD408 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD409 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD410 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD411 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD412 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD413 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD414 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| D602 | 93G5004 2 | SSM54PT SMA DIODE 5A 40V |
| | 715G1590 1 | MAIN BOARD PCB |
| | SMTKEPC6JA9 | KEYBOARD FOR SMT |
| CN102 | 33G3802 2H | WAFTER |
| CN103 | 33G3802 2H | WAFTER |
| CN101 | 33G8027 12 H | WAFER 2*6P 2.0mm R/A |
| R103 | 61G 60210152T | CFR 1/6W 100OHM +-5% |
| R104 | 61G 60210152T | CFR 1/6W 100OHM +-5% |
| R101 | 61G 60251152T | CFR 1/6W 510OHM +-5% |
| R102 | 61G 60251152T | CFR 1/6W 510OHM +-5% |
| SW1 | 77G 600 1GCJ | Switch |
| SW2 | 77G 600 1GCJ | Switch |
| SW3 | 77G 600 1GCJ | Switch |
| SW4 | 77G 600 1GCJ | Switch |
| SW5 | 77G 600 1GCJ | Switch |
| D101 | 81G 12 1F GP | LED |
| CN104 | 88G 30211K | PHONE JOCK |
| J1 | 95G 900 58 | WIRE HARNESS |
| ZD101 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD102 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD103 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD104 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| ZD105 | 93G 39S 34 T | ZENER DIODE UDZS5.6B |
| | 715G1591 2 | KEPC PCB |
| | PW521CP1SMTP | POWER BOARD FOR SMT |
| W901 | 9G6005 1 | PIN FOOT |
| CN801 | 33G8020 2D AC | CONN,2P R/A DIP BY ACES |
| CN802 | 33G8020 2D AC | CONN,2P R/A DIP BY ACES |
| CN902 | 33G8027 12 | WAFER 2*6P 2.0MM R/A |
| | 40G 45762412B | CBPC LABEL |
| | 51G 6 45056863 | RTV Glue |
| IC902 | 56G 139 3A | PC123Y22FZOF |
| VAR901 | 61G 46 9 | 10471 |

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|---|---|---|
| NR901 | 61G 58080 WT | NTCR |
| C903 | 63G 10747410S | 0.47UF +-10% 250VAC |
| C816 | 65G 3J2206ET | 22PF 5% 3KV TDK |
| C817 | 65G 3J5096ET | 5PF 5% SL 3KV |
| C901 | 65G306M1022BM | Y1.CAP.001UF 250VAC MURA |
| C902 | 65G306M1022BM | Y1.CAP.001UF 250VAC MURA |
| C921 | 65G306M1022BM | Y1.CAP.001UF 250VAC MURA |
| C909 | 67G215L102 4N | LOW ESR 1000UF 25V |
| C912 | 67G215L102 4N | LOW ESR 1000UF 25V |
| C811 | 67G215L471 4Q | LOW ESR EC 470UF 25V UH |
| C906 | 67G215L471 4Q | LOW ESR EC 470UF 25V UH |
| C911 | 67G215L471 4Q | LOW ESR EC 470UF 25V UH |
| C905 | 67G215S10115Q | LOWESR EC 100UF 450V PAG |
| FB901 | 71G 55 29 | Φ3.5*Φ0.8*2.2\ 100MM> |
| L903 | 73G 253 91 LS | CHOKE COIL |
| L904 | 73G 253 91 LS | CHOKE COIL |
| L901 | 73L 174 53 LG GP | LINE FILTER |
| L902 | 73L 174 55 LG GP | LINE FILTER |
| PT801 | 80GL15T 30 DN | X’FMR 74uH TK.2026.101 |
| T901 | 80LL19T 7 LG GP | TRANSFORMER |
| CN301 | 88G 30214K | PHONE JACK 5PIN |
| BD901 | 93G 50460900 | GBU408 |
| D901 | 93G 6026T52T | FR107-DO-41 1000V/1A |
| D905 | 93G 6038T52T | FR103 DO-41 200V/1A |
| CN302 | 95G8013 3704 X | HARNESS |
| | 705G 560 57S44 | R905 ASS’Y |
| | 705G 780 57S7P | Q903 ASS’Y |
| | 705GJ5K0 61001 | R904 ASS’Y |
| | 705GJ5K0 87001 | CN901 ASS’Y |
| | 705GJ5K0 93001 | D902 ASS’Y |
| | 705GJ5K0 93002 | D904 ASS’Y |
| | 705GJ5K0 95001 | JP907 ASS’Y |
| | PW521CP1AIP | POWER FOR AI |
| IC901 | 56G 379 76 | IC LD7552BPS SOP-8 |
| IC801 | 56G 608 10 | OZ9938GN SOIC-16 |
| Q801 | 57G 417 4 | PMBS3904/PLILIPS |
| Q802 | 57G 417 4 | PMBS3904/PLILIPS |
| Q803 | 57G 417 4 | PMBS3904/PLILIPS |
| Q902 | 57G 417 4 | PMBS3904/PLILIPS |
| Q901 | 57G 417 6 | PMBS3906 PNP |

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| Q804 | 57G 759 2 | TRANSISTOR RK7002 SOT-3 |
| Q806 | 57G 759 2 | TRANSISTOR RK7002 SOT-3 |
| Q807 | 57G 759 2 | TRANSISTOR RK7002 SOT-3 |
| Q808 | 57G 759 2 | TRANSISTOR RK7002 SOT-3 |
| Q805 | 57G 763 14 | AM9945N-T1-PF SOIC-8 |
| R839 | 61G0805000 | RST CHIP MAX 0R05 1/8W |
| R844 | 61G0805000 | RST CHIP MAX 0R05 1/8W |
| R925 | 61G0805000 | RST CHIP MAX 0R05 1/8W |
| RJ824 | 61G0805000 | RST CHIP MAX 0R05 1/8W |
| R836 | 61G0805100 | RST CHIP 10R 1/8W 5% |
| R837 | 61G0805100 | RST CHIP 10R 1/8W 5% |
| R826 | 61G0805100 2F | RST CHIP 10K 1/8W 1% |
| R915 | 61G0805101 | RST CHIP 100R 1/8W 5% |
| R923 | 61G0805102 | CHIPR 1K OHM +-5% 1/10W |
| R924 | 61G0805102 | CHIPR 1K OHM +-5% 1/10W |
| R926 | 61G0805102 | CHIPR 1K OHM +-5% 1/10W |
| R803 | 61G0805103 | CHIP 10KOHM 1/10W |
| R804 | 61G0805103 | CHIP 10KOHM 1/10W |
| R812 | 61G0805103 | CHIP 10KOHM 1/10W |
| R820 | 61G0805103 | CHIP 10KOHM 1/10W |
| R919 | 61G0805103 | CHIP 10KOHM 1/10W |
| R810 | 61G0805104 | RST CHIP 100K 1/8W 5% |
| R815 | 61G0805104 | RST CHIP 100K 1/8W 5% |
| R821 | 61G0805104 | RST CHIP 100K 1/8W 5% |
| R813 | 61G0805105 | RST CHIP 1M 1/8W 5% |
| R816 | 61G0805105 | RST CHIP 1M 1/8W 5% |
| R845 | 61G0805105 | RST CHIP 1M 1/8W 5% |
| R847 | 61G0805105 | RST CHIP 1M 1/8W 5% |
| R848 | 61G0805105 | RST CHIP 1M 1/8W 5% |
| R809 | 61G0805204 | RST CHIPR 200 KOHM +-5% |
| R807 | 61G0805220 | RST CHIP 22R 1/8W 5% |
| R840 | 61G0805242 | RST CHIP 2K4 1/8W 5% |
| R841 | 61G0805242 | RST CHIP 2K4 1/8W 5% |
| R922 | 61G0805243 1F | RST CHIPR 2.43 KOHM +-1% |
| R825 | 61G0805271 | CHIPR 270 OHM +-50% 1/8W |
| R912 | 61G0805272 | RST CHIP 2K7 1/8W 5% |
| R802 | 61G0805304 | RST CHIPR 300 KOHM +-5% |
| R920 | 61G0805330 2F | CHIP 33KOHM 1/10W/1% |
| R838 | 61G0805360 0F | RST CHIPR 360 OHM +-1% 1 |
| R921 | 61G0805360 1F | CHIP 3.6KOHM 1/10W 1% |

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|---|---|---|
| R817 | 61G0805360 2F | RST CHIPR 36 KOHM +-1% 1 |
| R843 | 61G0805471 | RST CHIP 470R 1/8W 5% |
| R913 | 61G0805472 | RST CHIP 4K7 1/8W 5% |
| R811 | 61G0805473 | RST CHIP 47K 1/8W 5% |
| R827 | 61G0805510 1F | RST CHIPR 5.1 KOHM +-1% |
| R814 | 61G0805563 | RST CHIP 56K 1/8W 5% |
| D906 | 61G1206000 | CHIP resistors 1/3W |
| JR902 | 61G1206000 | CHIP resistors 1/3W |
| R801 | 61G1206000 | CHIP resistors 1/3W |
| R918 | 61G1206100 | RST CHIP 10R 1/4W 5% |
| R930 | 61G1206100 3F | RST CHIPR 100 KOHM +-1% |
| R906 | 61G1206101 | CHIP 1000HM 5% 1/8W |
| R916 | 61G1206101 | CHIP 1000HM 5% 1/8W |
| R927 | 61G1206101 | CHIP 1000HM 5% 1/8W |
| R934 | 61G1206101 | CHIP 1000HM 5% 1/8W |
| R935 | 61G1206101 | CHIP 1000HM 5% 1/8W |
| R936 | 61G1206101 | CHIP 1000HM 5% 1/8W |
| R937 | 61G1206101 | CHIP 1000HM 5% 1/8W |
| R806 | 61G1206105 | CHIP 1MOHM 5% 1/8W |
| R818 | 61G1206150 | RST CHIP 15R 1/4W 5% |
| R819 | 61G1206150 | RST CHIP 15R 1/4W 5% |
| R808 | 61G1206204 | RST CHIPR 200 KOHM +-5% |
| R909 | 61G1206434 | RST CHIPR 430 KOHM +-5% |
| R910 | 61G1206434 | RST CHIPR 430 KOHM +-5% |
| R931 | 61G1206434 | RST CHIPR 430 KOHM +-5% |
| R805 | 61G1206471 | RST CHIP 470R 1/4W 5% |
| R911 | 61G1206472 | CHIP 4.7KOHM 5% 18W |
| R914 | 61G1206519 | CHIP resistors 1/3W |
| R901 | 61G1206684 | CHIPR 680KOHM +-5% 1/8W |
| R902 | 61G1206684 | CHIPR 680KOHM +-5% 1/8W |
| R903 | 61G1206684 | CHIPR 680KOHM +-5% 1/8W |
| R907 | 61G1206684 | CHIPR 680KOHM +-5% 1/8W |
| R908 | 61G1206684 | CHIPR 680KOHM +-5% 1/8W |
| R932 | 61G1206684 | CHIPR 680KOHM +-5% 1/8W |
| C805 | 65G0805102 32 | CHIP 1000PF 50V X7R 0805 |
| C917 | 65G0805102 32 | CHIP 1000PF 50V X7R 0805 |
| C807 | 65G0805103 32 | CHIP 10000 PF 50V X7R 08 |
| C803 | 65G0805104 22 | CHIP 0.1UF 25VX7R 0805 |
| C907 | 65G0805104 22 | CHIP 0.1UF 25VX7R 0805 |
| C910 | 65G0805104 22 | CHIP 0.1UF 25VX7R 0805 |

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|---|---|---|
| C915 | 65G0805104 22 | CHIP 0.1UF 25VX7R 0805 |
| C916 | 65G0805104 22 | CHIP 0.1UF 25VX7R 0805 |
| C801 | 65G0805104 32 | CHIP 0.1UF 50V X7R 0805 |
| C820 | 65G0805104 32 | CHIP 0.1UF 50V X7R 0805 |
| C821 | 65G0805104 32 | CHIP 0.1UF 50V X7R 0805 |
| C822 | 65G0805104 32 | CHIP 0.1UF 50V X7R 0805 |
| C806 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 |
| C918 | 65G0805105 22 | CHIP 1UF 25V X7R 0805 |
| C804 | 65G0805155 A2 | 1.5 UF 10V |
| C802 | 65G0805221 31 | CHIP 220PF 50V NPO |
| C818 | 65G0805271 31 | CHIP 270pF 50V NPO 0805 |
| C919 | 65G0805471 21 | CHIP 470PF 25V NPO 0805 |
| C812 | 65G0805472 31 | CHIP 4700PF 50V X7R 080 |
| C813 | 65G0805472 31 | CHIP 4700PF 50V X7R 080 |
| C823 | 65G0805472 31 | CHIP 4700PF 50V X7R 080 |
| C824 | 65G0805472 31 | CHIP 4700PF 50V X7R 080 |
| C809 | 65G0805473 32 | SMD 47NF +-10% 50V |
| C819 | 65G0805473 32 | SMD 47NF +-10% 50V |
| C810 | 65G080556131G | MLCC 0805 560PF G 50V NP |
| C808 | 65G0805682 32 | CHIP 6.8nF 50V X7R 0805 |
| C932 | 65G1206102 72 | CHIP 1000PF 500V X7R |
| C914 | 65G1206104 32 | CHIP 0.1UF 25V X7R 1206 |
| C931 | 65G1206222 72 | CHIP 2200PF 500V X7R |
| C933 | 65G1206222 72 | CHIP 2200PF 500V X7R |
| D802 | 93G 64 33 | BAV99 SOT-23 |
| D801 | 93G 64 42 PP | DIODE BAV70 SOT-23 |
| D803 | 93G 64 44 S | CHIP DIODE LL4148WP |
| D804 | 93G 64 44 S | CHIP DIODE LL4148WP |
| D903 | 93G 64 44 S | CHIP DIODE LL4148WP |
| ZD904 | 93G 39S 17 T | RLZ12B LLDS |
| ZD903 | 93G 39S 19 T | PTZ7.5B |
| ZD901 | 93G 39S 23 T | GLZ22B |
| ZD801 | 93G 39S 24 T | RLZ5.6B ROHM |
| ZD902 | 93G 39S 25 T | RLZ5.1B ROHM |
| ZD905 | 93G 39S 44 T | RLZ18B LLDS |
| CN901 | 6G 31500 | 2.0MM EYELET |
| C905 | 6G 31502 | 1.5MM RIVET |
| L901 | 6G 31502 | 1.5MM RIVET |
| L902 | 6G 31502 | 1.5MM RIVET |
| PT801 | 6G 31502 | 1.5MM RIVET |

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|---|---|---|
| Q903 | 6G 31502 | 1.5MM RIVET |
| R904 | 6G 31502 | 1.5MM RIVET |
| T901 | 6G 31502 | 1.5MM RIVET |
| IC903 | 56G 158 10 T | IC AZ431AZ-AE1 TO-92 |
| R928 | 61G 20022152T | 220OHM 1% 1/4W |
| R822 | 61G212Y305 KT | MGFR 3M OHM +-5% 1/2W |
| C930 | 65G 1K152 1T | 1500PF +/-10% 1KV Y5P |
| C922 | 67G 2152207NT | 22UF/50V |
| F901 | 84G 55 7W | 250V/3.15A FUSE |
| F902 | 84G 55 7W | 250V/3.15A FUSE |
| | 715G2152 F | PCB |
| R905 | 61G152M10458G | 100K OHM 5% 2W |
| | 96G 29 6 | SHRINK TUBE UL/CSA |
| | 51G 200 1 6342 | Coolant Oil |
| Q903 | 57G 667 30 | 2SK2645-54MR TO-220F |
| | 90G6084 1 | HEAT SINK |
| XN01A | AM1G1730 8120 | SCREW |
| R904 | 61G 2J68858G | 0.68 OHM 5% 2W |
| | 96G 29 6 | SHRINK TUBE UL/CSA |
| CN901 | 87G 501 36 S | AC SOCKET |
| | 95G 900703 X | WIRE HARNESS |
| | 96G 29 6 | SHRINK TUBE UL/CSA |
| | 51G 200 1 6342 | Coolant Oil |
| | 90G6084 1 | HEAT SINK |
| D902 | 93G 60245 | DIODE SP10150 ITO-220 |
| XN01A | AM1G1730 8120 | SCREW |
| | 51G 200 1 6342 | Coolant Oil |
| | 90G6084800 | HEAT SINK |
| D904 | 93G 60245 | DIODE SP10150 ITO-220 |
| XN01A | AM1G1730 8120 | SCREW |
| | 96G 29 1 | H.S.TUBE |
| | 44GP503 1A 1 | PAPER PAD-1 |
| | 44GP503 1A 2 | PAPER PAD-2 |
| | 44GP503 1A 3 | PAPER PAD-3 |